RADIO TEST REPORT

Test Report No.: 10334251S-A

Applicant	:	**NINTENDO CO., LTD.**
Type of Equipment	:	**Portable Game Machine with Wireless LAN**
Model No.	:	**RED-001**
FCC ID	:	**BKERED001**
Test regulation	:	**FCC Part15 Subpart C: 2014**
Test result	:	**Complied**

1. This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.
2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the limits of the above regulation.
4. The test results in this test report are traceable to the national or international standards.
5. This test report must not be used by the customer to claim product certification, approval, or endorsement by any agency of the Federal Government.
6. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.

Date of test: June 10 to 25, 2014

Tested by:

Akio Hayashi
Engineer
Consumer Technology Division

Approved by :

Toyokazu Imamura
Leader
Consumer Technology Division

☐ The testing in which "Non-accreditation" is displayed is outside the accreditation scopes in UL Japan.
☒ There is no testing item of "Non-accreditation".

RTL02610

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

REVISION HISTORY

Original Test Report No.: 10334251S-A

Revision	Test report No.	Date	Page revised	Contents
-(Original)	10334251S-A	July 29, 2014	-	-
1	10334251S-A	September 18, 2014	4, 29, 31	Correction of Antenna gain
1	10334251S-A	September 25, 2014	5	Correction of worst margin

Contents

Page

SECTION 1: Customer information 4
SECTION 2: Equipment under test (E.U.T.) 4
SECTION 3: Test specification, procedures & results 5
SECTION 4: Operation of E.U.T. during testing 8
SECTION 5: Conducted emission 9
SECTION 6: Radiated emission 10
SECTION 7: 6dB bandwidth & Occupied bandwidth (99%) 12
SECTION 8: Maximum peak output power 12
SECTION 9: Out of band emissions (Antenna port conducted) 12
SECTION 10: Peak power density 12
Contents of APPENDIXES 13
APPENDIX 1: Data of Radio tests 14
APPENDIX 2: Test instruments 62
APPENDIX 3: Photographs of test setup 63

SECTION 1: Customer information

Company Name	:	NINTENDO CO., LTD.
Brand name	:	Nintendo
Address	:	11-1 Hokotate-cho, Kamitoba, Minami-ku, Kyoto 601-8501, Japan
Telephone Number	:	+81-075-662-9600
Facsimile Number	:	+81-075-662-9624
Contact Person	:	Kazuya Kuramoto

SECTION 2: Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Type of Equipment	:	Portable Game Machine with Wireless LAN
Model No.	:	RED-001
Serial No.	:	Refer to 4.2 in this report.
Rating	:	AC 100V – 240V(AC Adaptor)
Country of Mass-production	:	China
Condition of EUT	:	Production prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT	:	No modification by the test lab.
Receipt Date of Sample	:	May 12, 2014

2.2 Product description

Model: RED-001 (referred to as the EUT in this report) is a Portable Game Machine with Wireless LAN.

Clock frequency(ies) in the system : 804.33MHz

Radio specification [W-LAN (IEEE802.11b/g)]

Equipment type	:	Transceiver
Frequency of operation	:	2412-2472MHz for IEEE802.11b, 2412-2462MHz for IEEE802.11g
Bandwidth & channel spacing	:	20MHz & 5MHz
Type of modulation	:	DSSS, OFDM
Antenna type	:	PIFA Antenna(Model name: ANT/WIFI/MIT-RED)
Antenna gain	:	-0.01dBi
Antenna connector type	:	20270_001E_01
Operation temperature range	:	5 to +35 deg.C.

Radio specification [NFC] (Refer to test report 10334251S-C)

Radio Type	:	Transceiver
Frequency of Operation	:	13.56MHz
Modulation	:	ASK 100%(type A), ASK 10%(typeB, F)
Antenna type	:	Print pattern antenna
ITU code	:	A1D
Operating Temperature	:	5 to +35 deg C.

FCC 15.31 (e)
The stable voltage (DC3.3V, DC 1.8V and DC 1.2V) is provided constantly to RF part via regulator. Therefore, the EUT complies with the requirement.

FCC 15.203
It is impossible for end users to replace the antenna, because the antenna is mounted inside of the EUT. Therefore the EUT complies with the requirement.

SECTION 3: Test specification, procedures & results

3.1 Test specification

Test specification : FCC Part 15 Subpart C: 2014, final revised on May 1, 2014 and effective June 2, 2014
Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.207 Conducted limits
Section 15.209 Radiated emission limits, general requirements
Section 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz

3.2 Procedures & Results

Item	Test Procedure *1)	Specification	Remarks	Deviation	Worst Margin	Results
Conducted emission	ANSI C63.10:2009	FCC 15.207	-	N/A	8.8dB Freq.: 1.53280MHz, 1.78780MHz Detector: Quasi-Peak Phase: N Tx, IEEE802.11g, 2437MHz, Tabuchi's AC adaptor No.1, X'tal B	Complied
6dB bandwidth	ANSI C63.10:2009	FCC 15.247 (a)(2)	Conducted	N/A	* See data	Complied
Maximum peak output power	ANSI C63.10:2009	FCC 15.247 (b)(3)	Conducted	N/A		Complied
Out of band emission & Restricted band edges	ANSI C63.10:2009	FCC 15.109, 15.247 (d) & 15.209	Conducted / Radiated	N/A	5.4dB Freq.: 12060.000 MHz Polarization: Horizontal Detection: Average Tx, IEEE802.11g, PN9, 2412 MHz, X'tal A	Complied
Power density	ANSI C63.10:2009	FCC 15.247 (e)	Conducted	N/A	* See data	Complied
Note: UL Japan's EMI Work Procedures No.13-EM-W0420 and 13-EM-W0422. *1) These tests were also referred to KDB 558074 v03 r02 (FCC), "Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247".						

3.3 Addition to standard

Item	Test Procedure	Specification	Remarks	Worst Margin	Results
Occupied Bandwidth (99%)	ANSI C63.10:2009, RSS-Gen 4.6.1	-	Conducted	-	-
Note: UL Japan's Work Procedures No. 13-EM-W0420 and 13-EM-W0422					

* Other than above, no addition, exclusion nor deviation has been made from the standard.

3.4 Uncertainty

The following uncertainties have been calculated to provide a confidence level of 95% using a coverage factor k=2.

Item	Frequency range	No.1 SAC*1/SR*2 (±)	No.2 SAC/SR (±)	No.3 SAC/SR (±)
Conducted emission (AC Mains) LISN	150kHz-30MHz	3.6 dB	3.6 dB	3.5 dB
Radiated emission (Measurement distance: 3m)	9kHz-30MHz	3.7 dB	3.7 dB	3.6 dB
	30MHz-300MHz	4.8 dB	5.0 dB	4.8 dB
	300MHz-1GHz	5.0 dB	5.0 dB	4.8 dB
	1GHz-15GHz	4.9 dB	4.9 dB	4.9 dB
Radiated emission (Measurement distance: 1m)	15GHz-18GHz	5.7 dB	5.6 dB	5.6 dB
	18GHz-40GHz	5.2 dB	4.3 dB	4.3 dB

*1: SAC=Semi-Anechoic Chamber
*2: SR= Shielded Room is applied besides radiated emission

Conducted emission test

The data listed in this test report has enough margin, more than the site margin.

Radiated emission test

The data listed in this test report has enough margin, more than the site margin.

Antenna port conducted test

Power measurement uncertainty above 1GHz for this test was: (±) 1.5dB
Spurious emission (Conducted) measurement (below 1GHz) uncertainty for this test was: (±) 1.6dB
Spurious emission (Conducted) measurement (1G-3GHz) uncertainty for this test was: (±) 1.4dB
Spurious emission (Conducted) measurement (3G-18GHz) uncertainty for this test was: (±) 2.8dB
Spurious emission (Conducted) measurement (18G-26.5GHz) uncertainty for this test was: (±) 2.5dB
Bandwidth measurement uncertainty for this test was: (±) 5.4%

3.5 Test location

UL Japan, Inc. Shonan EMC Lab.
1-22-3, Megumigaoka, Hiratsuka-shi, Kanagawa-ken 259-1220 JAPAN
Telephone number : +81 463 50 6400
Facsimile number : +81 463 50 6401
JAB Accreditation No. : RTL02610

	IC Registration No.	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measurement distance
☐ No.1 semi-anechoic chamber	2973D-1	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
☐ No.2 semi-anechoic chamber	2973D-2	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
☒ No.3 semi-anechoic chamber	2973D-3	12.7 x 7.7 x 5.35	12.7 x 7.7	5m
☐ No.4 semi-anechoic chamber	-	8.1 x 5.1 x 3.55	8.1 x 5.1	-
☐ No.1 shielded room	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
☐ No.2 shielded room	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
☒ No.3 shielded room	-	6.3 x 4.7 x 2.7	6.3 x 4.7	-
☐ No.4 shielded room	-	4.4 x 4.7 x 2.7	4.4 x 4.7	-
☒ No.5 shielded room	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-
☐ No.6 shielded room	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-
☐ No.1 measurement room	-	2.55 x 4.1 x 2.5	-	-

3.6 Test setup, Test data & Test instruments

Refer to APPENDIX 1 to 3.

SECTION 4: Operation of E.U.T. during testing

4.1 Operating mode

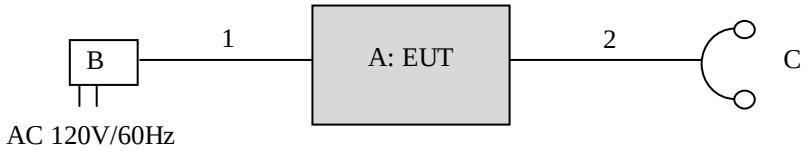
Test item	Mode	Tested frequency	Worst data mode *1)
Conducted emission Radiated emission (below 1GHz) *2)	Transmitting (Tx) IEEE 802.11g	2437MHz	PN9, 24Mbps
Radiated emission (above 1GHz)	Transmitting (Tx) IEEE 802.11b	2412MHz, 2442MHz, 2472MHz	PN9, 1Mbps
	Transmitting (Tx) IEEE 802.11g	2412MHz, 2437MHz, 2462MHz	PN9, 24Mbps
Other items	Transmitting (Tx) IEEE 802.11b	2412MHz, 2442MHz, 2472MHz	PN9, 1Mbps
	Transmitting (Tx) IEEE 802.11g	2412MHz, 2437MHz, 2462MHz	PN9, 24Mbps

*1) The worst condition was determined based on the test result of Maximum Peak Output Power.
*2) Test operating mode was determined as follows according to "Section 1 of 6 802.11 a/b/g/n testing- Managing Complex Regulatory Approvals - "of TCB Council Workshop October 2009.

Software : ART_Remote Ver.1.0.0.0
Power setting : Fixed

Justification: The system was configured in typical fashion (as customer would normally use it) for testing.

4.2 Configuration and peripherals



*Cabling and setup were taken into consideration and test data was taken under worse case conditions.

Description of EUT and support equipment

No.	Item	Model number	Serial number	Manufacturer	Remark
A	Portable Game Machine with Wireless LAN	KTR-001	*1)	NINTENDO	EUT
B	AC Adaptor	WAP-002(USA)	No.1	Mitsumi *2)	-
		WAP-002(USA)	No.1	Tabuchi *3)	-
		WAP-002(USA)	No.1	Nichicon *3)	-
C	Headphones	-	-	-	-

*1) Antenna port conducted tests: QW09500101 2, Conducted emission test (X'tal-A): QW09500113 5, Conducted emission test (X'tal-B): QW09500351 1, ,Radiated emission tests (X'tal-A): QW09500113 5, Radiated emission tests (X'tal-B): QW09500351 1
*2) Used for all the tests.
*3) Used for the tests except for Antenna terminal conducted test and Radiated Emission test (above15GHz).

Accessory and model differences
The difference between mode A (X'tal A) and mode B (X'tal B) is that the mode A has crystal part number 340000LA0B, 213000AA0G and Mode B has crystal part number CX3225SB40000C4CEFZ1, CX3225SB13000G0FEFZ1.
The two crystals are compatible and are electrically identical having same radio parameters.
So, for the antenna terminal tests, the X'tal A was used as a representative.

List of cable used

No.	Item	Length (m)	Shield	Remark
1	DC	1.9	Shielded	-
2	Headphones	0.8	Unshielded	-

SECTION 5: Conducted emission

5.1 Operating environment

Test place : See test data (APPENDIX 1)
Temperature : See test data (APPENDIX 1)
Humidity : See test data (APPENDIX 1)

5.2 Test configuration

EUT was placed on a platform of nominal size, 1m by 1.5m, raised 0.8m above the conducting ground plane.
The table is made of Styrofoam and covered with polyvinyl chloride. That has very low permittivity.
The rear of tabletop was located 40cm to the vertical conducting plane. The rear of peripheral was aligned and was flushed with rear of tabletop. All other surfaces of tabletop were at least 80cm from any other grounded conducting surface. EUT was located 80cm from LISN.
Each EUT current-carrying power lead, except the ground (safety) lead, was individually connected through a LISN to the input power source. All unused 50ohm connectors of the LISN were resistively terminated in 50ohm when not connected to the measuring equipment.
Photographs of the set up are shown in APPENDIX 3.

5.3 Test conditions

Frequency range : 0.15 - 30MHz
EUT position : Table top

5.4 Test procedure

The AC Mains Terminal Continuous disturbance Voltage had been measured with the EUT via AC adaptor within a semi-anechoic chamber. The EUT via AC adaptor was connected to a Line Impedance Stabilization Network (LISN).
An overview sweep with peak detection has been performed.
The measurements had been performed with a quasi-peak detector and if required, a CISPR average detector.
The conducted emission measurements were made with the following detection of the test receiver.

Detection Type : Quasi-Peak/ CISPR Average
IF Bandwidth : 9kHz

5.5 Results

Summary of the test results : Pass
Refer to APPENDIX 1

SECTION 6: Radiated emission

6.1 Operating environment

Test place : See test data (APPENDIX 1)
Temperature : See test data (APPENDIX 1)
Humidity : See test data (APPENDIX 1)

6.2 Test configuration

EUT was placed on a platform of nominal size, 0.5m by 0.5m raised 0.8m above the conducting ground plane. The table is made of Styrofoam. That has very low permittivity. The rear of EUT, including its peripherals was aligned and flushed with rear of tabletop.

Photographs of the set up are shown in APPENDIX 3.

6.3 Test conditions

Frequency range : 30MHz to 25GHz
EUT position : Table top

6.4 Test procedure

The Radiated Electric Field Strength intensity has been measured on a semi-anechoic chamber with a ground plane and at a distance of 3m (below 15GHz) / 1m (above 15GHz) (Refer to Figure 1). Measurements were performed with quasi-peak, peak and average detector. The measuring antenna height was varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity. The measurements were performed for both vertical and horizontal antenna polarization.
The radiated emission measurements were made with the following detection.

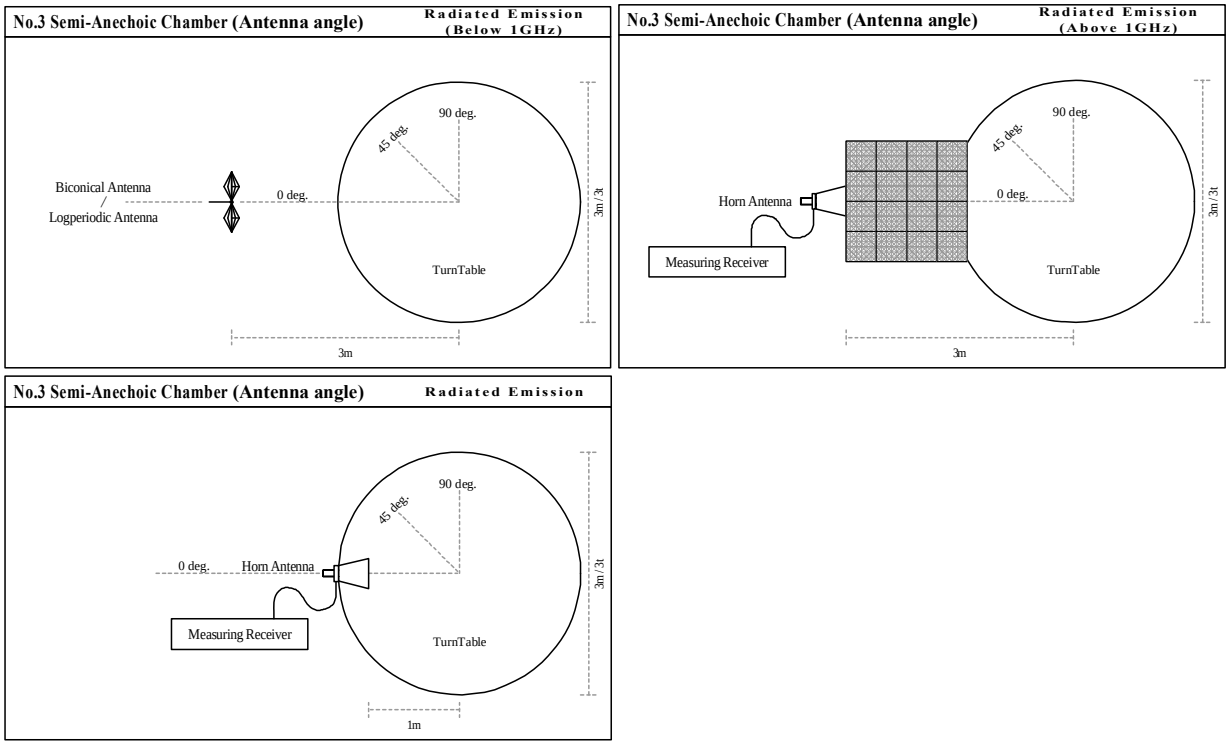
Frequency	30-1000MHz	1-25GHz		20dBc
Detection type	Quasi-Peak	Peak	Average *1)	Peak
IF Bandwidth	120kHz	RBW: 1MHz VBW: 3MHz	RBW: 1MHz VBW: 3MHz Detector: RMS	RBW: 100kHz VBW: 300kHz

*1) Average Power Measurement was measured based on 12.2.5 of "Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247”.

The carrier levels and noise levels were confirmed at each position of X, Y and Z axes to see the position of maximum noise, and the test was made at the position that has the maximum noise.

Antenna polarization	Carrier	Spurious (Below 1GHz)	Spurious (1-15GHz)	Spurious (15-18GHz)	Spurious (18-25GHz)
Horizontal	X	Z	X	X	Y
Vertical	Y	X	Y	X	X

Figure 1. Antenna angle



6.5 Band edge

Band edge level at 2390MHz and 2483.5MHzis below the limits of FCC 15.209 and band edge level at 2400MHz is below the 20dBc. Refer to the data.

6.6 Results

Summary of the test results : Pass
* No noise was detected above the 5th order harmonics.

Refer to APPENDIX 1

SECTION 7: 6dB bandwidth & Occupied bandwidth (99%)

Test procedure
The bandwidth was measured with a spectrum analyzer connected to the antenna port.
The test was measured based on Method 8.1 Option 1 and 8.2 Option 2 of "Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247".

Summary of the test results: Pass
Refer to APPENDIX 1

SECTION 8: Maximum peak output power

Test procedure
The Maximum Peak Output Power was measured with a power meter connected to the antenna port.
The test was measured based on Method 9.1.3 PKPM1 of "Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247".

Summary of the test results: Pass
Refer to APPENDIX 1

*1) Average detector was used only for Reference data of SAR testing.

SECTION 9: Out of band emissions (Antenna port conducted)

Test procedure
The Out of Band Emissions was measured with a spectrum analyzer connected to the antenna port.
The radio frequency power that is produced by the intentional radiator confirmed 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on a radiated measurement.
In the frequency range below 30MHz, RBW was narrowed to separate the noise contents.
Then, wide-band noise near the limit was checked separately, however the noise was not detected as shown in the chart.
(9kHz-150kHz:RBW=200Hz, 150kHz-30MHz:RBW=10kHz)

Summary of the test results: Pass
Refer to APPENDIX 1

SECTION 10: Peak power density

Test procedure
The peak power density was measured with a spectrum analyzer connected to the antenna port.

Instrument used	:	Spectrum Analyzer
RBW / VBW	:	3kHz / 9.1kHz

The test was measured based on Method 10.2 PKPSD of "Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247".

Summary of the test results: Pass
Refer to APPENDIX 1

Contents of APPENDIXES

APPENDIX 1: Data of Radio tests

Conducted emission
6dB bandwidth
Maximum peak output power
Radiated emission
Spurious emission (Antenna port conducted)
Peak power density
Occupied bandwidth

APPENDIX 2: Test instruments

Test instruments

APPENDIX 3: Photographs of test setup

Conducted emission
Radiated emission
Pre-check of the worst position

APPENDIX 1: Data of EMI test

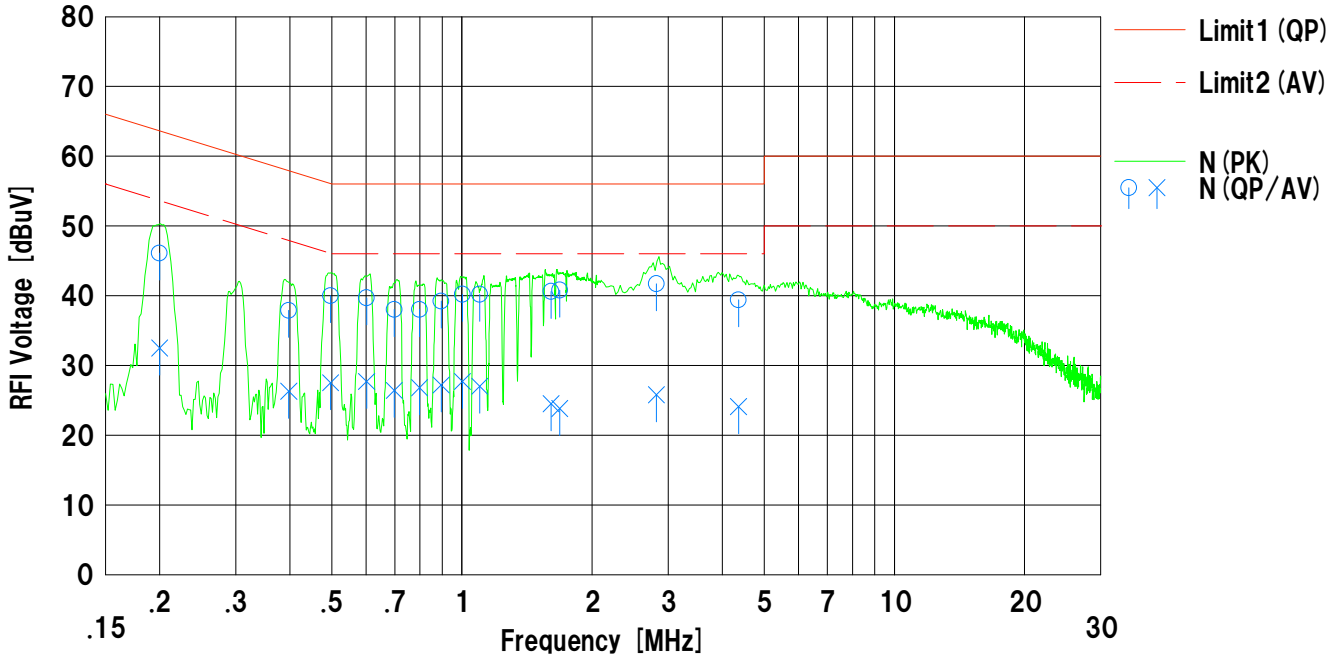
DATA OF CONDUCTED EMISSION TEST

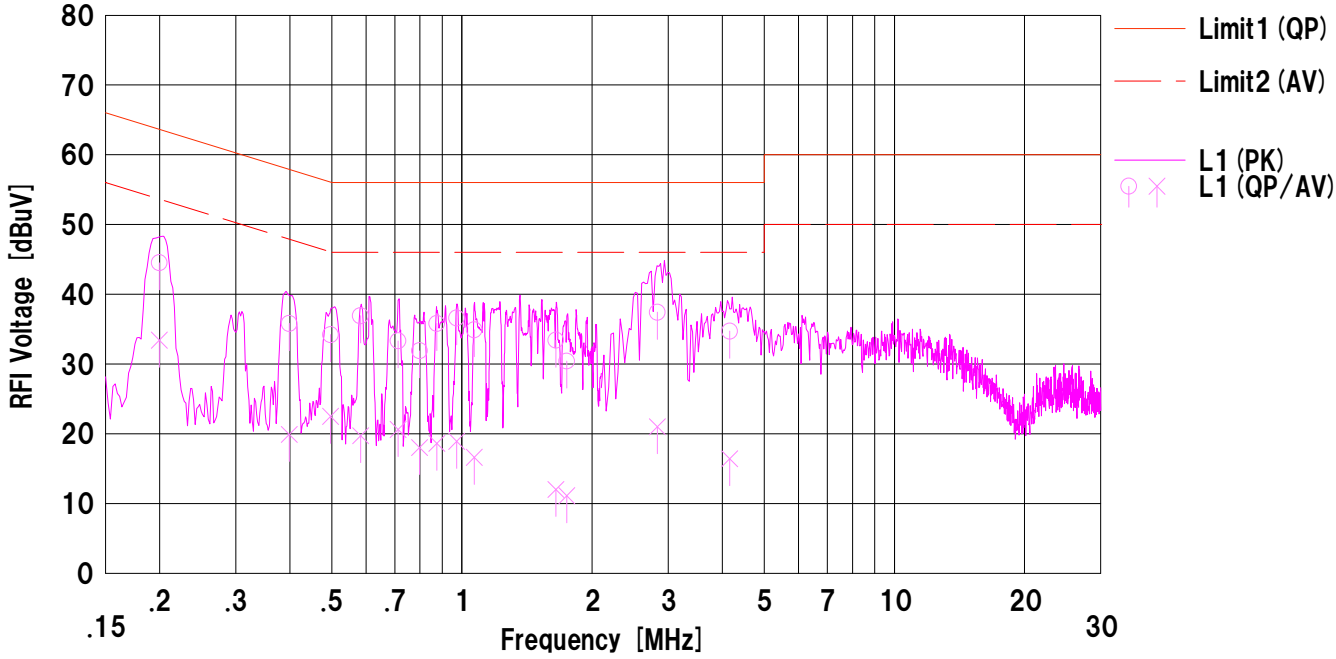
UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2014/06/25

Company	: NINTENDO CO., LTD	Mode	: Tx, IEEE802.11g, 2437MHz
Kind of EUT	: Refer to section 2.2	Order No.	: 10334251S
Model No.	: RED-001	Power	: AC 120V / 60Hz
Serial No.	: QW09500113 5	Temp./Humi.	: 25deg.C / 57%RH
Remarks	: (Mitsumi's AC adaptor No.1), X'tal A		

Limit1 : FCC 15C(15.207) QP
Limit2 : FCC 15C(15.207) AV

Engineer : Akio Hayashi





Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN:SLS-02

DATA OF CONDUCTED EMISSION TEST

UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2014/06/25

Company : NINTENDO CO., LTD
Kind of EUT : Refer to section 2.2
Model No. : RED-001
Serial No. : QW09500113 5
Remarks : (Mitsumi's AC adaptor No.1), X'tal A

Mode : Tx, IEEE802.11g, 2437MHz
Order No. : 10334251S
Power : AC 120V / 60Hz
Temp./Humi. : 25deg.C / 57%RH

Limit1 : FCC 15C(15.207) QP
Limit2 : FCC 15C(15.207) AV

Engineer : Akio Hayashi

<< QP/AV DATA >>

No.	Freq.	Reading		C.Fac	Results		Limit		Margin		Phase	Comment
		<QP>	<AV>		<QP>	<AV>	<QP>	<AV>	<QP>	<AV>		
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.19980	33.3	19.7	12.8	46.1	32.5	63.6	53.6	17.5	21.1	N	
2	0.39770	25.1	13.5	12.8	37.9	26.3	57.9	47.9	20.0	21.6	N	
3	0.49690	27.2	14.7	12.8	40.0	27.5	56.0	46.0	16.0	18.5	N	
4	0.60180	26.9	14.9	12.8	39.7	27.7	56.0	46.0	16.3	18.3	N	
5	0.69750	25.2	13.6	12.8	38.0	26.4	56.0	46.0	18.0	19.6	N	
6	0.79750	25.2	14.0	12.8	38.0	26.8	56.0	46.0	18.0	19.2	N	
7	0.89530	26.4	14.4	12.8	39.2	27.2	56.0	46.0	16.8	18.8	N	
8	1.00230	27.3	14.8	12.9	40.2	27.7	56.0	46.0	15.8	18.3	N	
9	1.09960	27.3	14.1	12.9	40.2	27.0	56.0	46.0	15.8	19.0	N	
10	1.60635	27.6	11.5	13.0	40.6	24.5	56.0	46.0	15.4	21.5	N	
11	1.68300	27.8	10.8	13.0	40.8	23.8	56.0	46.0	15.2	22.2	N	
12	2.81720	28.6	12.7	13.1	41.7	25.8	56.0	46.0	14.3	20.2	N	
13	4.36090	26.1	10.8	13.3	39.4	24.1	56.0	46.0	16.6	21.9	N	
14	0.19970	31.7	20.6	12.8	44.5	33.4	63.6	53.6	19.1	20.2	L1	
15	0.39861	23.0	7.1	12.8	35.8	19.9	57.8	47.8	22.0	27.9	L1	
16	0.49732	21.4	9.7	12.8	34.2	22.5	56.0	46.0	21.8	23.5	L1	
17	0.58310	24.1	6.9	12.8	36.9	19.7	56.0	46.0	19.1	26.3	L1	
18	0.71233	20.5	7.8	12.8	33.3	20.6	56.0	46.0	22.7	25.4	L1	
19	0.79851	19.1	5.2	12.8	31.9	18.0	56.0	46.0	24.1	28.0	L1	
20	0.87525	23.0	5.8	12.8	35.8	18.6	56.0	46.0	20.2	27.4	L1	
21	0.97257	23.7	6.0	12.9	36.6	18.9	56.0	46.0	19.4	27.1	L1	
22	1.06779	22.0	3.7	12.9	34.9	16.6	56.0	46.0	21.1	29.4	L1	
23	1.64962	20.4	-1.0	13.0	33.4	12.0	56.0	46.0	22.6	34.0	L1	
24	1.74690	17.4	-1.9	13.0	30.4	11.1	56.0	46.0	25.6	34.9	L1	
25	2.83360	24.3	7.9	13.1	37.4	21.0	56.0	46.0	18.6	25.0	L1	
26	4.16400	21.5	3.2	13.2	34.7	16.4	56.0	46.0	21.3	29.6	L1	

Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN:SLS-02

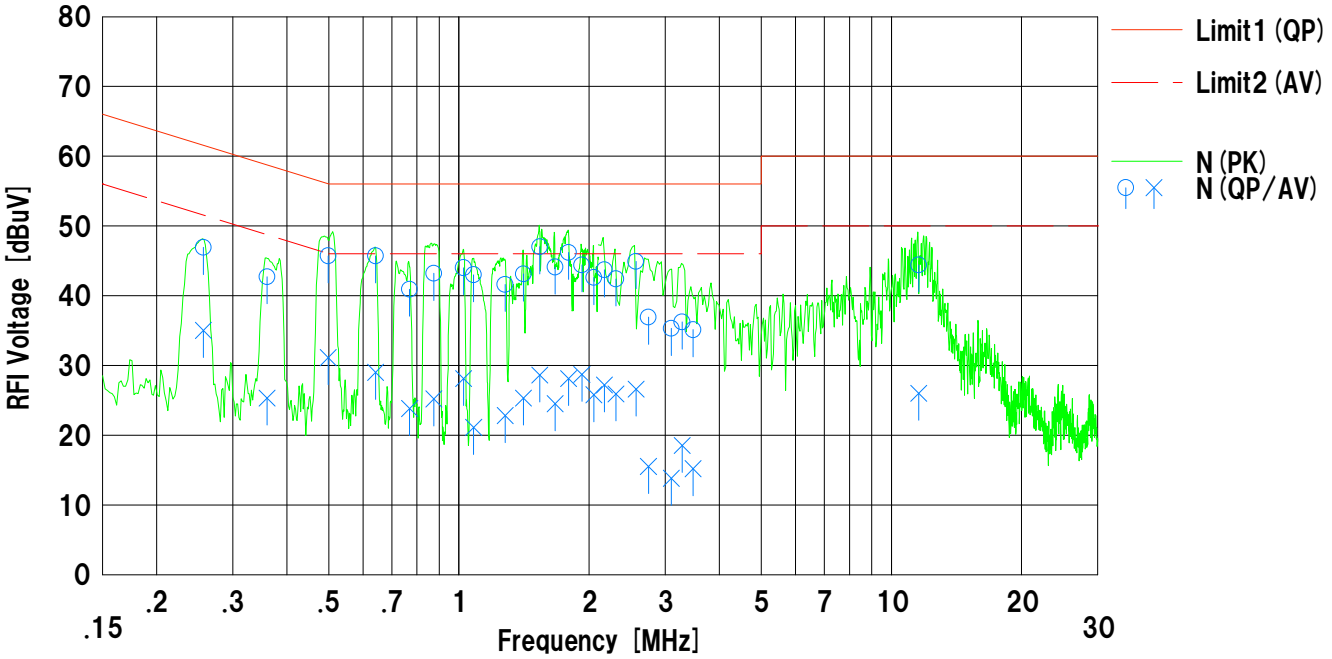
DATA OF CONDUCTED EMISSION TEST

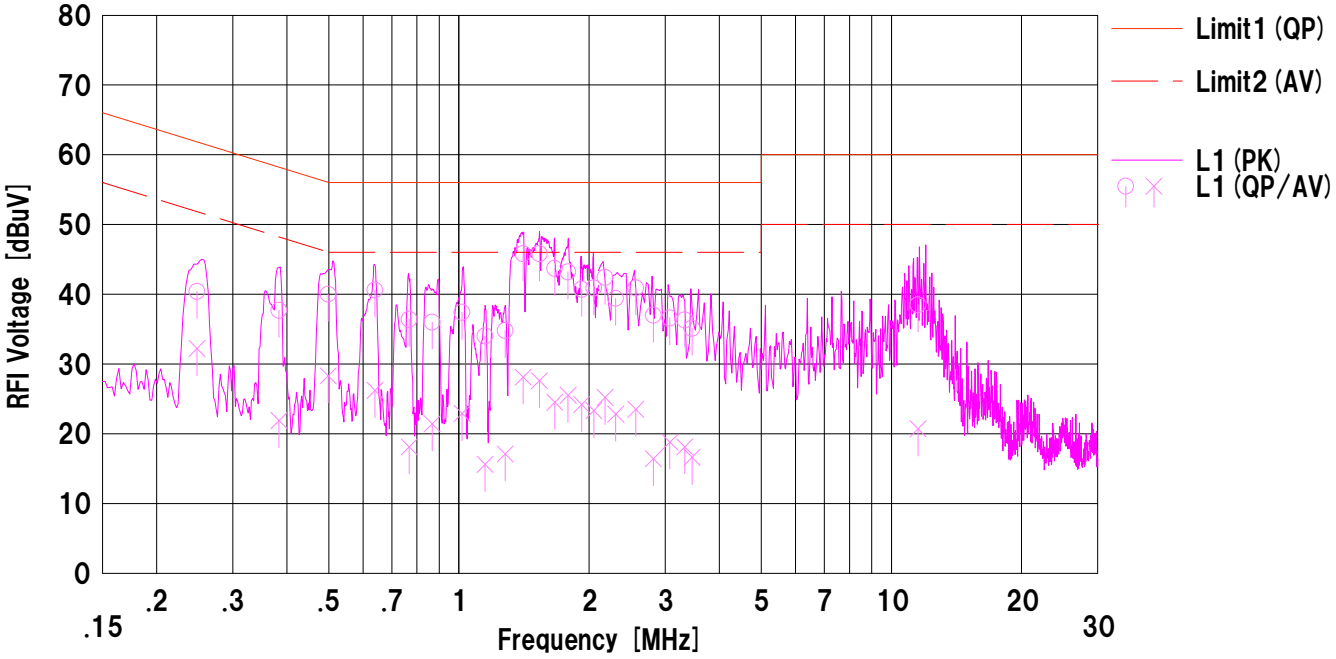
UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2014/06/25

Company	: NINTENDO CO., LTD	Mode	: Tx, IEEE802.11g, 2437MHz
Kind of EUT	: Refer to section 2.2	Order No.	: 10334251S
Model No.	: RED-001	Power	: AC 120V / 60Hz
Serial No.	: QW09500113 5	Temp./Humi.	: 25deg.C / 57%RH
Remarks	: (Tabuchi's AC adaptor No.1), X'tal A		

Limit1 : FCC 15C(15.207) QP
Limit2 : FCC 15C(15.207) AV

Engineer : Akio Hayashi





Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN:SLS-02

DATA OF CONDUCTED EMISSION TEST

UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2014/06/25

Company : NINTENDO CO., LTD
Kind of EUT : Refer to section 2.2
Model No. : RED-001
Serial No. : QW09500113 5
Remarks : (Tabuchi's AC adaptor No.1), X'tal A

Mode : Tx, IEEE802.11g, 2437MHz
Order No. : 10334251S
Power : AC 120V / 60Hz
Temp./Humi. : 25deg.C / 57%RH

Limit1 : FCC 15C(15.207) QP
Limit2 : FCC 15C(15.207) AV

Engineer : Akio Hayashi

<< QP/AV DATA >>

No.	Freq.	Reading		C.Fac	Results		Limit		Margin		Phase	Comment
		<QP>	<AV>		<QP>	<AV>	<QP>	<AV>	<QP>	<AV>		
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.25650	34.1	22.2	12.8	46.9	35.0	61.5	51.5	14.6	16.5	N	
2	0.36030	29.9	12.5	12.8	42.7	25.3	58.7	48.7	16.0	23.4	N	
3	0.49850	32.9	18.3	12.8	45.7	31.1	56.0	46.0	10.3	14.9	N	
4	0.64200	32.9	16.2	12.8	45.7	29.0	56.0	46.0	10.3	17.0	N	
5	0.76940	28.1	11.0	12.8	40.9	23.8	56.0	46.0	15.1	22.2	N	
6	0.87450	30.4	12.4	12.8	43.2	25.2	56.0	46.0	12.8	20.8	N	
7	1.02430	31.1	15.2	12.9	44.0	28.1	56.0	46.0	12.0	17.9	N	
8	1.08200	30.1	8.2	12.9	43.0	21.1	56.0	46.0	13.0	24.9	N	
9	1.27920	28.7	9.9	12.9	41.6	22.8	56.0	46.0	14.4	23.2	N	
10	1.41050	30.2	12.4	12.9	43.1	25.3	56.0	46.0	12.9	20.7	N	
11	1.53820	34.0	15.6	13.0	47.0	28.6	56.0	46.0	9.0	17.4	N	
12	1.66840	31.1	11.5	13.0	44.1	24.5	56.0	46.0	11.9	21.5	N	
13	1.79240	33.2	15.1	13.0	46.2	28.1	56.0	46.0	9.8	17.9	N	
14	1.92520	31.4	15.7	13.0	44.4	28.7	56.0	46.0	11.6	17.3	N	
15	2.05140	29.6	12.8	13.0	42.6	25.8	56.0	46.0	13.4	20.2	N	
16	2.16980	30.7	14.2	13.0	43.7	27.2	56.0	46.0	12.3	18.8	N	
17	2.30800	29.4	12.9	13.0	42.4	25.9	56.0	46.0	13.6	20.1	N	
18	2.56660	31.9	13.6	13.0	44.9	26.6	56.0	46.0	11.1	19.4	N	
19	2.74370	23.9	2.5	13.0	36.9	15.5	56.0	46.0	19.1	30.5	N	
20	3.09950	22.2	0.7	13.1	35.3	13.8	56.0	46.0	20.7	32.2	N	
21	3.28300	23.1	5.4	13.1	36.2	18.5	56.0	46.0	19.8	27.5	N	
22	3.48040	22.0	2.1	13.1	35.1	15.2	56.0	46.0	20.9	30.8	N	
23	11.56400	30.2	11.8	14.2	44.4	26.0	60.0	50.0	15.6	24.0	N	
24	0.24800	27.6	19.4	12.8	40.4	32.2	61.8	51.8	21.4	19.6	L1	
25	0.38375	24.9	9.1	12.8	37.7	21.9	58.1	48.1	20.4	26.2	L1	
26	0.49865	27.2	15.5	12.8	40.0	28.3	56.0	46.0	16.0	17.7	L1	
27	0.63950	27.8	13.4	12.8	40.6	26.2	56.0	46.0	15.4	19.8	L1	
28	0.76780	23.6	5.3	12.8	36.4	18.1	56.0	46.0	19.6	27.9	L1	
29	0.86795	23.2	8.6	12.8	36.0	21.4	56.0	46.0	20.0	24.6	L1	
30	1.01725	24.5	10.0	12.9	37.4	22.9	56.0	46.0	18.6	23.1	L1	
31	1.14950	21.1	2.7	12.9	34.0	15.6	56.0	46.0	22.0	30.4	L1	
32	1.27960	21.9	4.2	12.9	34.8	17.1	56.0	46.0	21.2	28.9	L1	
33	1.40711	32.9	15.2	12.9	45.8	28.1	56.0	46.0	10.2	17.9	L1	
34	1.53600	32.8	14.6	13.0	45.8	27.6	56.0	46.0	10.2	18.4	L1	
35	1.66545	30.7	11.5	13.0	43.7	24.5	56.0	46.0	12.3	21.5	L1	
36	1.78855	30.2	12.5	13.0	43.2	25.5	56.0	46.0	12.8	20.5	L1	
37	1.92380	27.7	11.2	13.0	40.7	24.2	56.0	46.0	15.3	21.8	L1	
38	2.05000	27.9	10.3	13.0	40.9	23.3	56.0	46.0	15.1	22.7	L1	
39	2.17910	29.4	12.2	13.0	42.4	25.2	56.0	46.0	13.6	20.8	L1	
40	2.30525	26.4	9.8	13.0	39.4	22.8	56.0	46.0	16.6	23.2	L1	
41	2.56330	27.9	10.5	13.0	40.9	23.5	56.0	46.0	15.1	22.5	L1	
42	2.81730	23.9	3.3	13.1	37.0	16.4	56.0	46.0	19.0	29.6	L1	
43	3.07565	23.5	5.7	13.1	36.6	18.8	56.0	46.0	19.4	27.2	L1	
44	3.32890	23.2	5.0	13.1	36.3	18.1	56.0	46.0	19.7	27.9	L1	
45	3.46052	22.0	3.5	13.1	35.1	16.6	56.0	46.0	20.9	29.4	L1	
46	11.52920	24.3	6.5	14.2	38.5	20.7	60.0	50.0	21.5	29.3	L1	

Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN:SLS-02

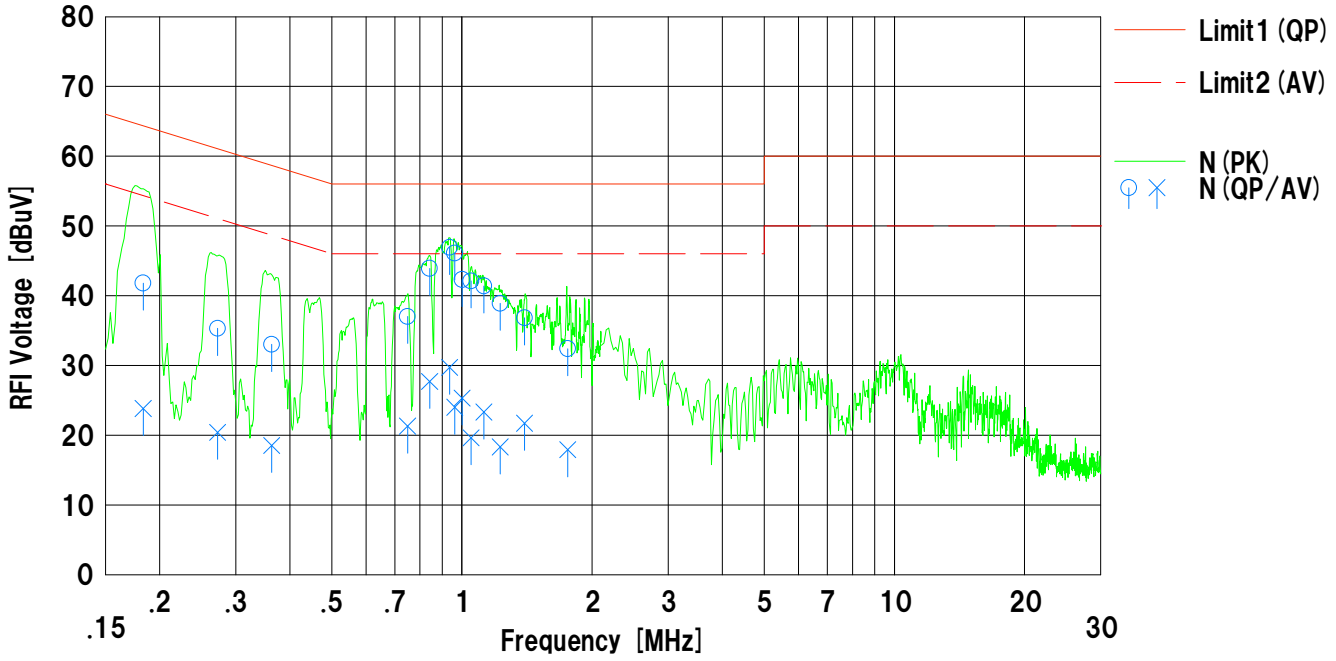
DATA OF CONDUCTED EMISSION TEST

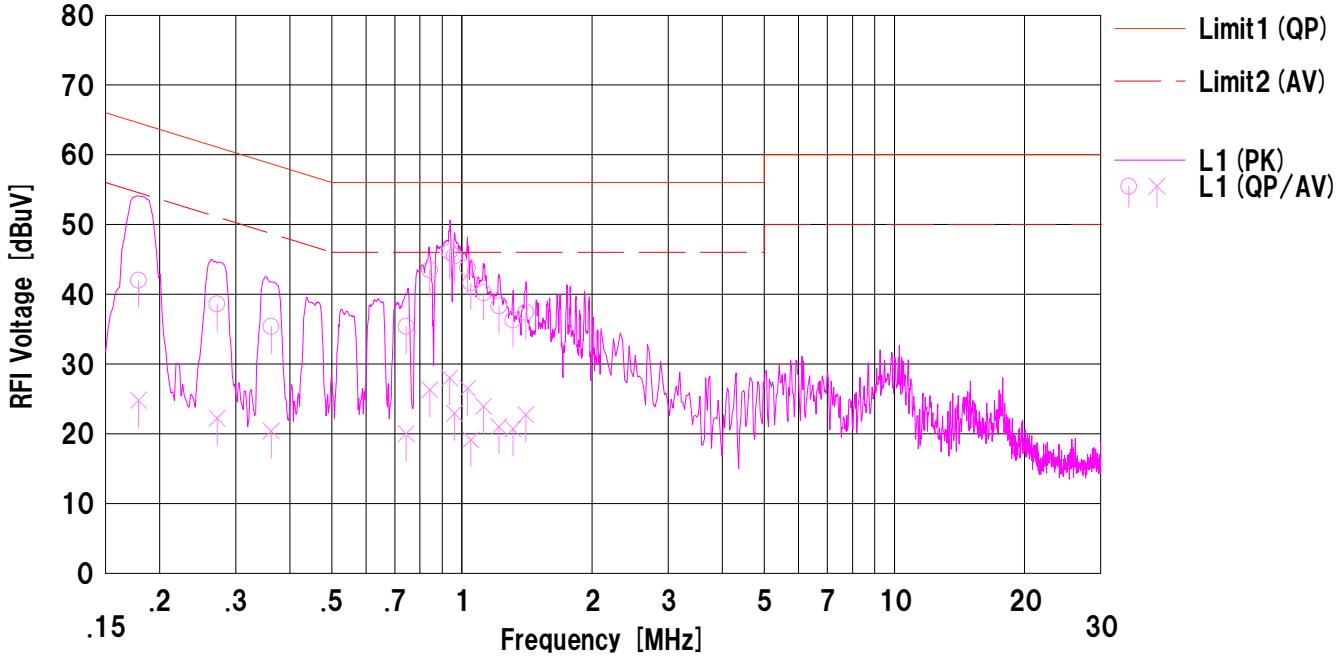
UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2014/06/25

Company	: NINTENDO CO., LTD	Mode	: Tx, IEEE802.11g, 2437MHz
Kind of EUT	: Refer to section 2.2	Order No.	: 10334251S
Model No.	: RED-001	Power	: AC 120V / 60Hz
Serial No.	: QW09500113 5	Temp./Humi.	: 25deg.C / 57%RH
Remarks	: (Nichicon's AC adaptor No.1), X'tal A		

Limit1 : FCC 15C(15.207) QP
Limit2 : FCC 15C(15.207) AV

Engineer : Akio Hayashi





Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN:SLS-02

DATA OF CONDUCTED EMISSION TEST

UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2014/06/25

Company : NINTENDO CO., LTD
Kind of EUT : Refer to section 2.2
Model No. : RED-001
Serial No. : QW09500113 5
Remarks : (Nichicon's AC adaptor No.1), X'tal A

Mode : Tx, IEEE802.11g, 2437MHz
Order No. : 10334251S
Power : AC 120V / 60Hz
Temp./Humi. : 25deg.C / 57%RH

Limit1 : FCC 15C(15.207) QP
Limit2 : FCC 15C(15.207) AV

Engineer : Akio Hayashi

<< QP/AV DATA >>

No.	Freq.	Reading		C.Fac	Results		Limit		Margin		Phase	Comment
		<QP>	<AV>		<QP>	<AV>	<QP>	<AV>	<QP>	<AV>		
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.18320	29.0	11.0	12.8	41.8	23.8	64.3	54.3	22.5	30.5	N	
2	0.27245	22.5	7.6	12.8	35.3	20.4	61.0	51.0	25.7	30.6	N	
3	0.36340	20.2	5.7	12.8	33.0	18.5	58.6	48.6	25.6	30.1	N	
4	0.74860	24.2	8.5	12.8	37.0	21.3	56.0	46.0	19.0	24.7	N	
5	0.84210	31.1	14.9	12.8	43.9	27.7	56.0	46.0	12.1	18.3	N	
6	0.93640	34.1	16.9	12.8	46.9	29.7	56.0	46.0	9.1	16.3	N	
7	0.96240	33.2	11.1	12.9	46.1	24.0	56.0	46.0	9.9	22.0	N	
8	1.00150	29.4	12.4	12.9	42.3	25.3	56.0	46.0	13.7	20.7	N	
9	1.04960	29.2	6.7	12.9	42.1	19.6	56.0	46.0	13.9	26.4	N	
10	1.12420	28.5	10.4	12.9	41.4	23.3	56.0	46.0	14.6	22.7	N	
11	1.22520	26.0	5.4	12.9	38.9	18.3	56.0	46.0	17.1	27.7	N	
12	1.39660	23.9	8.8	12.9	36.8	21.7	56.0	46.0	19.2	24.3	N	
13	1.75700	19.4	4.9	13.0	32.4	17.9	56.0	46.0	23.6	28.1	N	
14	0.17880	29.2	12.0	12.8	42.0	24.8	64.5	54.5	22.5	29.7	L1	
15	0.27151	25.8	9.4	12.8	38.6	22.2	61.0	51.0	22.4	28.8	L1	
16	0.36221	22.6	7.6	12.8	35.4	20.4	58.6	48.6	23.2	28.2	L1	
17	0.74332	22.6	7.2	12.8	35.4	20.0	56.0	46.0	20.6	26.0	L1	
18	0.84276	30.7	13.5	12.8	43.5	26.3	56.0	46.0	12.5	19.7	L1	
19	0.93735	33.3	15.2	12.8	46.1	28.0	56.0	46.0	9.9	18.0	L1	
20	0.96065	32.6	10.0	12.9	45.5	22.9	56.0	46.0	10.5	23.1	L1	
21	1.03012	30.9	13.6	12.9	43.8	26.5	56.0	46.0	12.2	19.5	L1	
22	1.04839	28.7	6.2	12.9	41.6	19.1	56.0	46.0	14.4	26.9	L1	
23	1.12240	27.3	11.0	12.9	40.2	23.9	56.0	46.0	15.8	22.1	L1	
24	1.21890	25.4	8.1	12.9	38.3	21.0	56.0	46.0	17.7	25.0	L1	
25	1.31190	23.4	7.8	12.9	36.3	20.7	56.0	46.0	19.7	25.3	L1	
26	1.40550	24.5	9.8	12.9	37.4	22.7	56.0	46.0	18.6	23.3	L1	

Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN:SLS-02

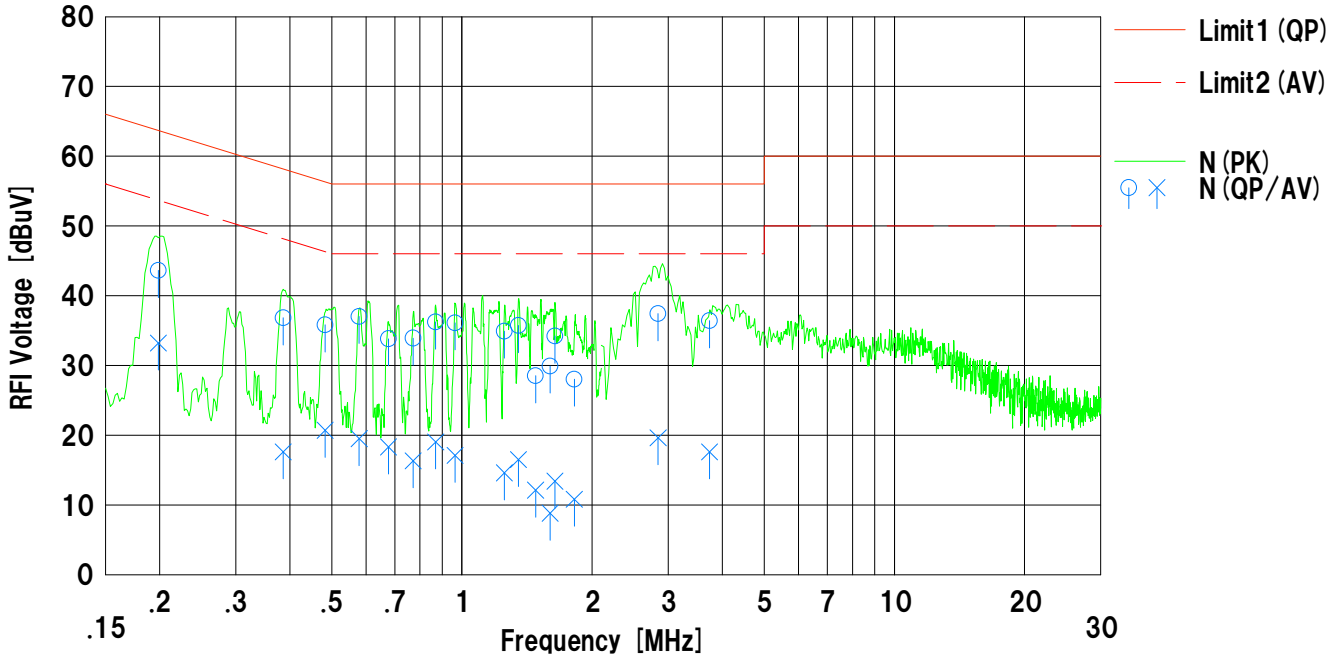
DATA OF CONDUCTED EMISSION TEST

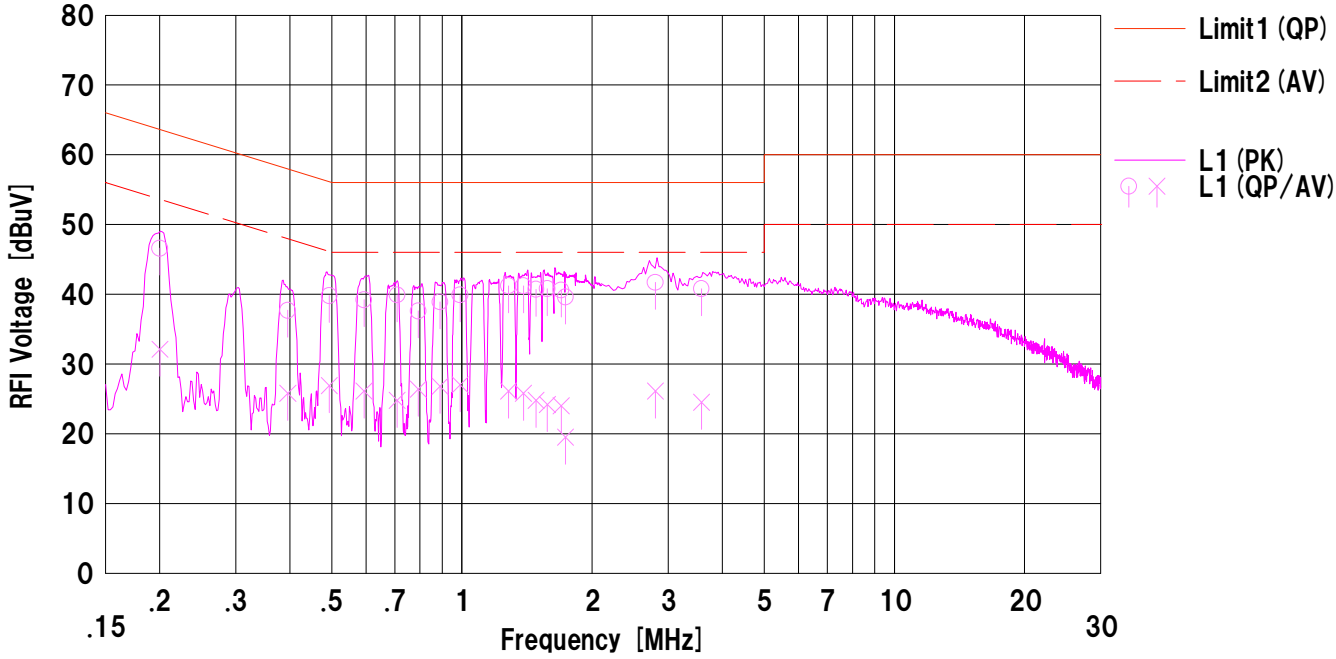
UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2014/06/25

Company	: NINTENDO CO., LTD	Mode	: Tx, IEEE802.11g, 2437MHz
Kind of EUT	: Refer to section 2.2	Order No.	: 10334251S
Model No.	: RED-001	Power	: AC 120V / 60Hz
Serial No.	: QW09500351 1	Temp./Humi.	: 25deg.C / 57%RH
Remarks	: (Mistumi's AC adaptor No.1), X'tal B		

Limit1 : FCC 15C(15.207) QP
Limit2 : FCC 15C(15.207) AV

Engineer : Akio Hayashi





Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN:SLS-02

DATA OF CONDUCTED EMISSION TEST

UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2014/06/25

Company : NINTENDO CO., LTD
Kind of EUT : Refer to section 2.2
Model No. : RED-001
Serial No. : QW09500351 1
Remarks : (Mistumi's AC adaptor No.1), X'tal B

Mode : Tx, IEEE802.11g, 2437MHz
Order No. : 10334251S
Power : AC 120V / 60Hz
Temp./Humi. : 25deg.C / 57%RH

Limit1 : FCC 15C(15.207) QP
Limit2 : FCC 15C(15.207) AV

Engineer : Akio Hayashi

<< QP/AV DATA >>

No.	Freq.	Reading		C.Fac	Results		Limit		Margin		Phase	Comment
		<QP>	<AV>		<QP>	<AV>	<QP>	<AV>	<QP>	<AV>		
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.19875	30.8	20.4	12.8	43.6	33.2	63.6	53.6	20.0	20.4	N	
2	0.38615	24.0	4.8	12.8	36.8	17.6	58.1	48.1	21.3	30.5	N	
3	0.48250	23.0	7.9	12.8	35.8	20.7	56.2	46.2	20.4	25.5	N	
4	0.57880	24.2	6.7	12.8	37.0	19.5	56.0	46.0	19.0	26.5	N	
5	0.67590	21.0	5.5	12.8	33.8	18.3	56.0	46.0	22.2	27.7	N	
6	0.77120	21.1	3.5	12.8	33.9	16.3	56.0	46.0	22.1	29.7	N	
7	0.86960	23.4	6.2	12.8	36.2	19.0	56.0	46.0	19.8	27.0	N	
8	0.96423	23.2	4.2	12.9	36.1	17.1	56.0	46.0	19.9	28.9	N	
9	1.25300	22.0	1.7	12.9	34.9	14.6	56.0	46.0	21.1	31.4	N	
10	1.35150	22.8	3.6	12.9	35.7	16.5	56.0	46.0	20.3	29.5	N	
11	1.48020	15.6	-0.8	12.9	28.5	12.1	56.0	46.0	27.5	33.9	N	
12	1.59860	16.9	-4.2	13.0	29.9	8.8	56.0	46.0	26.1	37.2	N	
13	1.64120	21.2	0.4	13.0	34.2	13.4	56.0	46.0	21.8	32.6	N	
14	1.81870	15.0	-2.2	13.0	28.0	10.8	56.0	46.0	28.0	35.2	N	
15	2.84213	24.3	6.5	13.1	37.4	19.6	56.0	46.0	18.6	26.4	N	
16	3.73840	23.3	4.5	13.1	36.4	17.6	56.0	46.0	19.6	28.4	N	
17	0.20030	33.8	19.3	12.8	46.6	32.1	63.5	53.5	16.9	21.4	L1	
18	0.39570	24.9	13.0	12.8	37.7	25.8	57.9	47.9	20.2	22.1	L1	
19	0.49370	27.0	14.1	12.8	39.8	26.9	56.1	46.1	16.3	19.2	L1	
20	0.59390	26.4	13.3	12.8	39.2	26.1	56.0	46.0	16.8	19.9	L1	
21	0.70830	27.1	12.0	12.8	39.9	24.8	56.0	46.0	16.1	21.2	L1	
22	0.79290	24.8	13.6	12.8	37.6	26.4	56.0	46.0	18.4	19.6	L1	
23	0.89020	26.1	14.0	12.8	38.9	26.8	56.0	46.0	17.1	19.2	L1	
24	0.99120	27.0	14.1	12.9	39.9	27.0	56.0	46.0	16.1	19.0	L1	
25	1.28090	28.3	13.2	12.9	41.2	26.1	56.0	46.0	14.8	19.9	L1	
26	1.38720	28.3	12.9	12.9	41.2	25.8	56.0	46.0	14.8	20.2	L1	
27	1.48340	27.8	11.9	12.9	40.7	24.8	56.0	46.0	15.3	21.2	L1	
28	1.57660	27.8	11.2	13.0	40.8	24.2	56.0	46.0	15.2	21.8	L1	
29	1.69630	27.6	11.0	13.0	40.6	24.0	56.0	46.0	15.4	22.0	L1	
30	1.73540	26.6	6.5	13.0	39.6	19.5	56.0	46.0	16.4	26.5	L1	
31	2.80040	28.6	13.0	13.1	41.7	26.1	56.0	46.0	14.3	19.9	L1	
32	3.57800	27.7	11.4	13.1	40.8	24.5	56.0	46.0	15.2	21.5	L1	

Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN:SLS-02

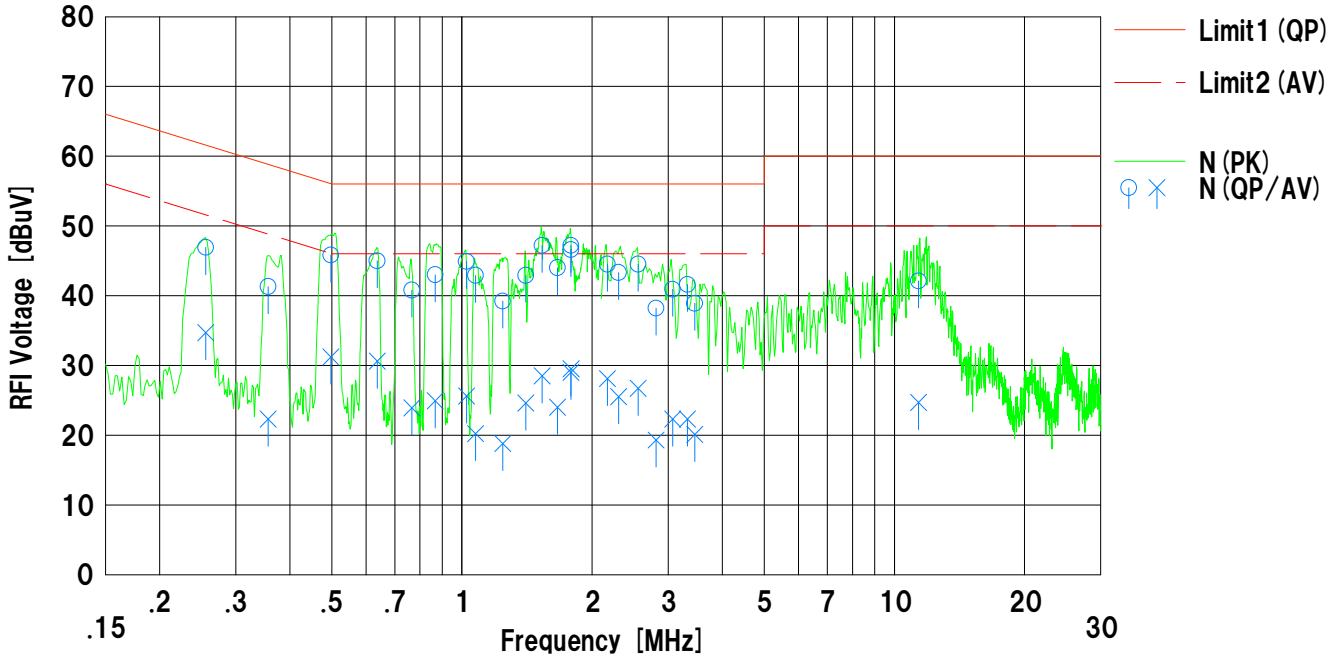
DATA OF CONDUCTED EMISSION TEST

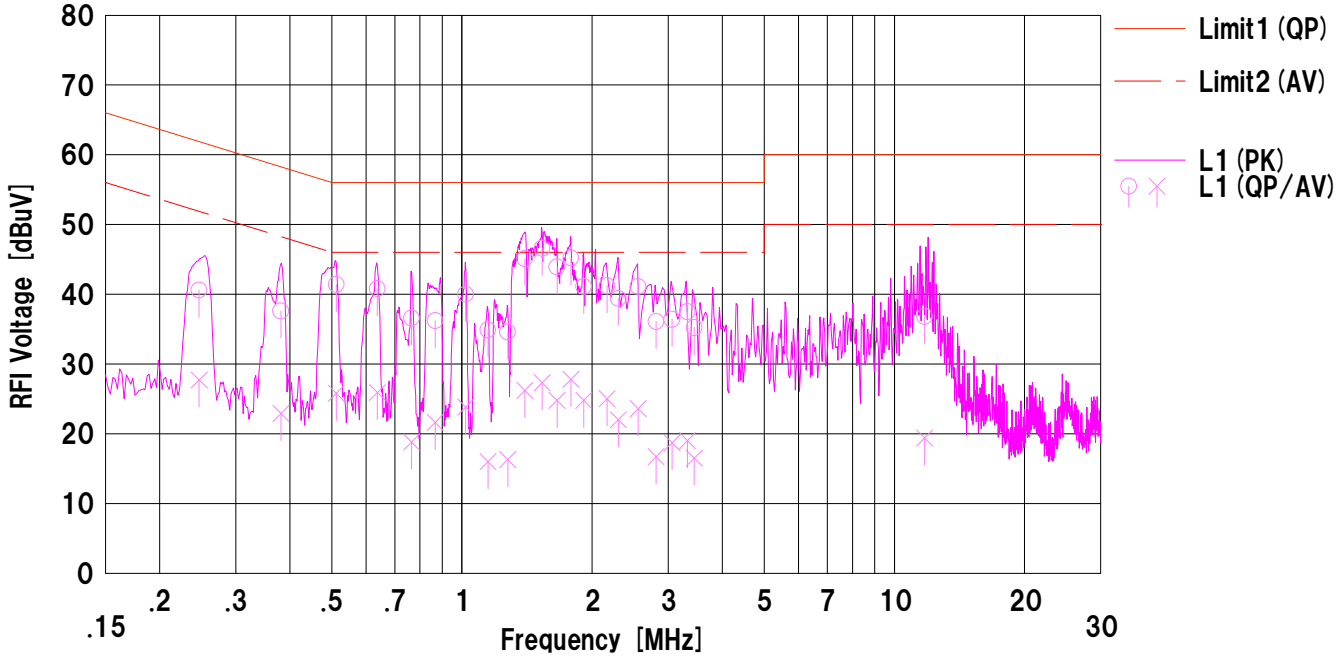
UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2014/06/25

Company	: NINTENDO CO., LTD	Mode	: Tx, IEEE802.11g, 2437MHz
Kind of EUT	: Refer to section 2.2	Order No.	: 10334251S
Model No.	: RED-001	Power	: AC 120V / 60Hz
Serial No.	: QW09500351 1	Temp./Humi.	: 25deg.C / 57%RH
Remarks	: (Tabuchi's AC adaptor No.1), X'tal B		

Limit1 : FCC 15C(15.207) QP
Limit2 : FCC 15C(15.207) AV

Engineer : Akio Hayashi





Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN:SLS-02

DATA OF CONDUCTED EMISSION TEST

UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2014/06/25

Company : NINTENDO CO., LTD
Kind of EUT : Refer to section 2.2
Model No. : RED-001
Serial No. : QW09500351 1
Remarks : (Tabuchi's AC adaptor No.1), X'tal B

Mode : Tx, IEEE802.11g, 2437MHz
Order No. : 10334251S
Power : AC 120V / 60Hz
Temp./Humi. : 25deg.C / 57%RH

Limit1 : FCC 15C(15.207) QP
Limit2 : FCC 15C(15.207) AV

Engineer : Akio Hayashi

<< QP/AV DATA >>

No.	Freq.	Reading		C.Fac	Results		Limit		Margin		Phase	Comment
		<QP>	<AV>		<QP>	<AV>	<QP>	<AV>	<QP>	<AV>		
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.25580	34.1	21.9	12.8	46.9	34.7	61.5	51.5	14.6	16.8	N	
2	0.35670	28.5	9.5	12.8	41.3	22.3	58.8	48.8	17.5	26.5	N	
3	0.49740	33.0	18.4	12.8	45.8	31.2	56.0	46.0	10.2	14.8	N	
4	0.63740	32.2	17.8	12.8	45.0	30.6	56.0	46.0	11.0	15.4	N	
5	0.76620	28.0	11.1	12.8	40.8	23.9	56.0	46.0	15.2	22.1	N	
6	0.86740	30.2	12.1	12.8	43.0	24.9	56.0	46.0	13.0	21.1	N	
7	1.02440	32.0	12.7	12.9	44.9	25.6	56.0	46.0	11.1	20.4	N	
8	1.07560	30.0	7.3	12.9	42.9	20.2	56.0	46.0	13.1	25.8	N	
9	1.24220	26.3	5.9	12.9	39.2	18.8	56.0	46.0	16.8	27.2	N	
10	1.40520	30.0	11.7	12.9	42.9	24.6	56.0	46.0	13.1	21.4	N	
11	1.53280	34.3	15.6	12.9	47.2	28.5	56.0	46.0	8.8	17.5	N	
12	1.66330	31.0	11.0	13.0	44.0	24.0	56.0	46.0	12.0	22.0	N	
13	1.78660	33.6	16.0	13.0	46.6	29.0	56.0	46.0	9.4	17.0	N	
14	1.78780	34.2	16.5	13.0	47.2	29.5	56.0	46.0	8.8	16.5	N	
15	2.16940	31.5	15.1	13.0	44.5	28.1	56.0	46.0	11.5	17.9	N	
16	2.30280	30.3	12.5	13.0	43.3	25.5	56.0	46.0	12.7	20.5	N	
17	2.55540	31.5	13.7	13.0	44.5	26.7	56.0	46.0	11.5	19.3	N	
18	2.81060	25.1	6.2	13.1	38.2	19.3	56.0	46.0	17.8	26.7	N	
19	3.07000	27.8	9.2	13.1	40.9	22.3	56.0	46.0	15.1	23.7	N	
20	3.32440	28.5	9.2	13.1	41.6	22.3	56.0	46.0	14.4	23.7	N	
21	3.45480	25.8	7.0	13.1	38.9	20.1	56.0	46.0	17.1	25.9	N	
22	11.37100	27.9	10.5	14.2	42.1	24.7	60.0	50.0	17.9	25.3	N	
23	0.24690	27.8	14.9	12.8	40.6	27.7	61.8	51.8	21.2	24.1	L1	
24	0.38130	24.8	10.1	12.8	37.6	22.9	58.2	48.2	20.6	25.3	L1	
25	0.51220	28.6	13.0	12.8	41.4	25.8	56.0	46.0	14.6	20.2	L1	
26	0.63770	28.0	13.1	12.8	40.8	25.9	56.0	46.0	15.2	20.1	L1	
27	0.76410	23.8	6.0	12.8	36.6	18.8	56.0	46.0	19.4	27.2	L1	
28	0.86720	23.4	8.8	12.8	36.2	21.6	56.0	46.0	19.8	24.4	L1	
29	1.01990	27.1	10.9	12.9	40.0	23.8	56.0	46.0	16.0	22.2	L1	
30	1.14820	22.0	3.1	12.9	34.9	16.0	56.0	46.0	21.1	30.0	L1	
31	1.27622	21.7	3.4	12.9	34.6	16.3	56.0	46.0	21.4	29.7	L1	
32	1.39822	32.2	13.3	12.9	45.1	26.2	56.0	46.0	10.9	19.8	L1	
33	1.53225	33.7	14.4	12.9	46.6	27.3	56.0	46.0	9.4	18.7	L1	
34	1.65950	30.9	11.8	13.0	43.9	24.8	56.0	46.0	12.1	21.2	L1	
35	1.78710	32.2	14.8	13.0	45.2	27.8	56.0	46.0	10.8	18.2	L1	
36	1.91250	28.1	11.8	13.0	41.1	24.8	56.0	46.0	14.9	21.2	L1	
37	2.16680	28.2	12.0	13.0	41.2	25.0	56.0	46.0	14.8	21.0	L1	
38	2.30000	26.4	9.0	13.0	39.4	22.0	56.0	46.0	16.6	24.0	L1	
39	2.55350	28.1	10.6	13.0	41.1	23.6	56.0	46.0	14.9	22.4	L1	
40	2.80950	23.0	3.6	13.1	36.1	16.7	56.0	46.0	19.9	29.3	L1	
41	3.06180	23.3	5.6	13.1	36.4	18.7	56.0	46.0	19.6	27.3	L1	
42	3.32210	24.4	5.9	13.1	37.5	19.0	56.0	46.0	18.5	27.0	L1	
43	3.44620	22.1	3.4	13.1	35.2	16.5	56.0	46.0	20.8	29.5	L1	
44	11.74100	22.6	5.2	14.2	36.8	19.4	60.0	50.0	23.2	30.6	L1	

Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN:SLS-02

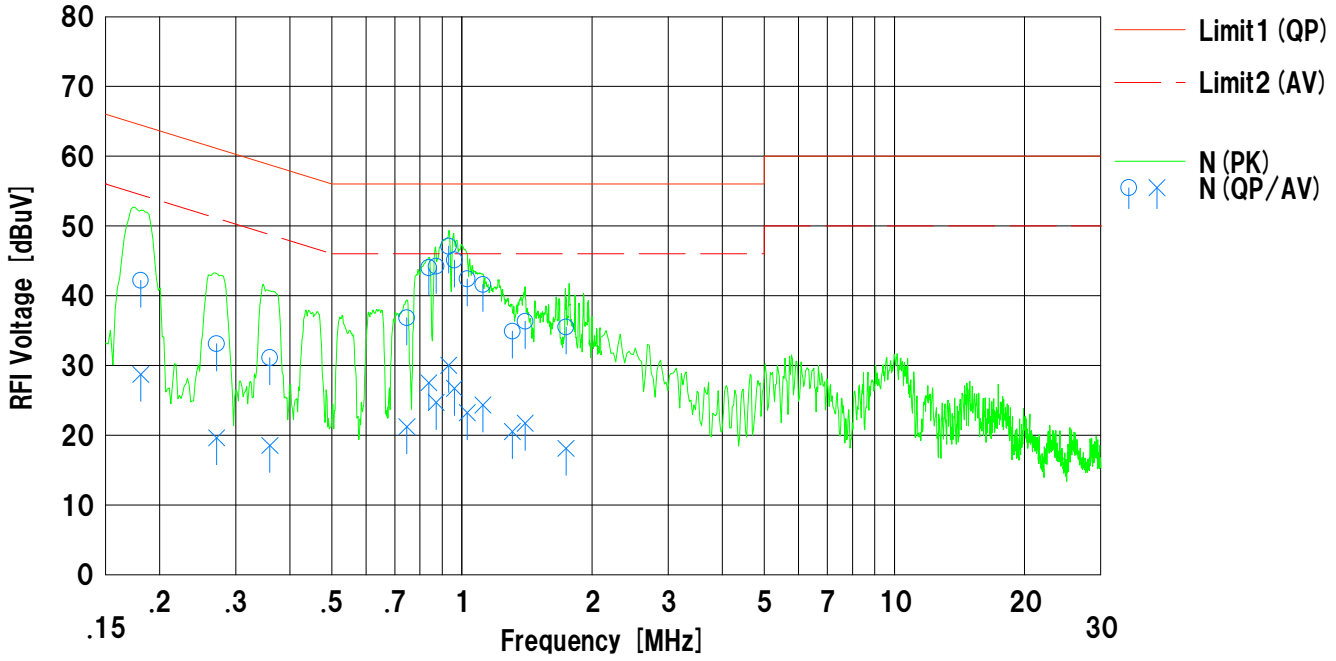
DATA OF CONDUCTED EMISSION TEST

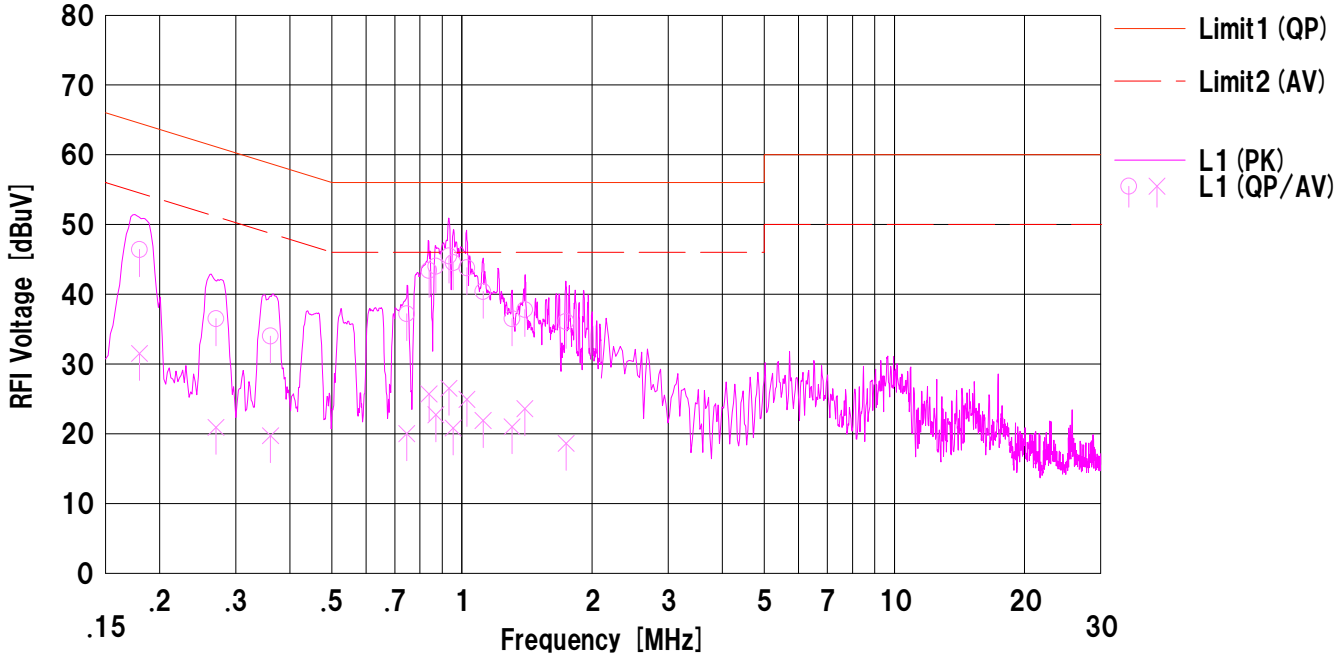
UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2014/06/25

Company	: NINTENDO CO., LTD	Mode	: Tx, IEEE802.11g, 2437MHz
Kind of EUT	: Refer to section 2.2	Order No.	: 10334251S
Model No.	: RED-001	Power	: AC 120V / 60Hz
Serial No.	: QW09500351 1	Temp./Humi.	: 25deg.C / 57%RH
Remarks	: (Nichicon's AC adaptor No.1), X'tal B		

Limit1 : FCC 15C(15.207) QP
Limit2 : FCC 15C(15.207) AV

Engineer : Akio Hayashi





Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN:SLS-02

DATA OF CONDUCTED EMISSION TEST

UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2014/06/25

Company : NINTENDO CO., LTD
Kind of EUT : Refer to section 2.2
Model No. : RED-001
Serial No. : QW09500351 1
Remarks : (Nichicon's AC adaptor No.1), X'tal B

Mode : Tx, IEEE802.11g, 2437MHz
Order No. : 10334251S
Power : AC 120V / 60Hz
Temp./Humi. : 25deg.C / 57%RH

Limit1 : FCC 15C(15.207) QP
Limit2 : FCC 15C(15.207) AV

Engineer : Akio Hayashi

<< QP/AV DATA >>

No.	Freq.	Reading		C.Fac	Results		Limit		Margin		Phase	Comment
		<QP>	<AV>		<QP>	<AV>	<QP>	<AV>	<QP>	<AV>		
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.18080	29.4	15.9	12.8	42.2	28.7	64.4	54.4	22.2	25.7	N	
2	0.27080	20.3	6.8	12.8	33.1	19.6	61.0	51.0	27.9	31.4	N	
3	0.35965	18.3	5.7	12.8	31.1	18.5	58.7	48.7	27.6	30.2	N	
4	0.74603	24.0	8.4	12.8	36.8	21.2	56.0	46.0	19.2	24.8	N	
5	0.83860	31.2	14.7	12.8	44.0	27.5	56.0	46.0	12.0	18.5	N	
6	0.87154	31.4	11.9	12.8	44.2	24.7	56.0	46.0	11.8	21.3	N	
7	0.93190	34.3	17.2	12.8	47.1	30.0	56.0	46.0	8.9	16.0	N	
8	0.96063	32.2	13.8	12.9	45.1	26.7	56.0	46.0	10.9	19.3	N	
9	1.02840	29.5	10.3	12.9	42.4	23.2	56.0	46.0	13.6	22.8	N	
10	1.11864	28.7	11.4	12.9	41.6	24.3	56.0	46.0	14.4	21.7	N	
11	1.30824	22.0	7.6	12.9	34.9	20.5	56.0	46.0	21.1	25.5	N	
12	1.40140	23.4	8.8	12.9	36.3	21.7	56.0	46.0	19.7	24.3	N	
13	1.74020	22.5	5.1	13.0	35.5	18.1	56.0	46.0	20.5	27.9	N	
14	0.17955	33.6	18.7	12.8	46.4	31.5	64.5	54.5	18.1	23.0	L1	
15	0.27000	23.7	8.1	12.8	36.5	20.9	61.1	51.1	24.6	30.2	L1	
16	0.36085	21.2	6.9	12.8	34.0	19.7	58.7	48.7	24.7	29.0	L1	
17	0.74555	24.4	7.2	12.8	37.2	20.0	56.0	46.0	18.8	26.0	L1	
18	0.83920	30.6	12.9	12.8	43.4	25.7	56.0	46.0	12.6	20.3	L1	
19	0.87000	31.2	9.9	12.8	44.0	22.7	56.0	46.0	12.0	23.3	L1	
20	0.93390	32.7	13.7	12.8	45.5	26.5	56.0	46.0	10.5	19.5	L1	
21	0.95430	31.6	7.9	12.9	44.5	20.8	56.0	46.0	11.5	25.2	L1	
22	1.02660	30.9	12.0	12.9	43.8	24.9	56.0	46.0	12.2	21.1	L1	
23	1.11960	27.5	9.0	12.9	40.4	21.9	56.0	46.0	15.6	24.1	L1	
24	1.30540	23.6	8.1	12.9	36.5	21.0	56.0	46.0	19.5	25.0	L1	
25	1.39700	24.9	10.7	12.9	37.8	23.6	56.0	46.0	18.2	22.4	L1	
26	1.74220	23.1	5.6	13.0	36.1	18.6	56.0	46.0	19.9	27.4	L1	

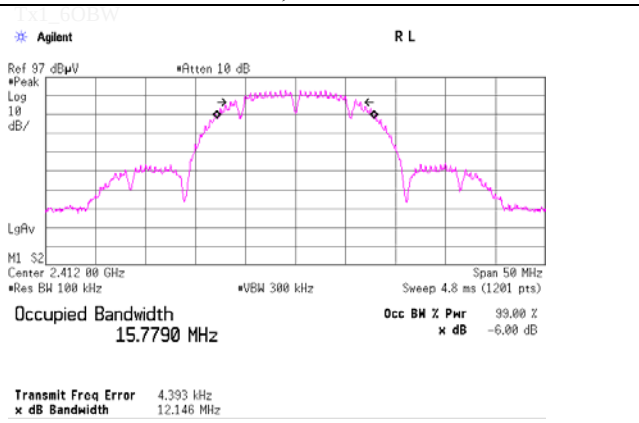
Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN:SLS-02

-6dB Bandwidth

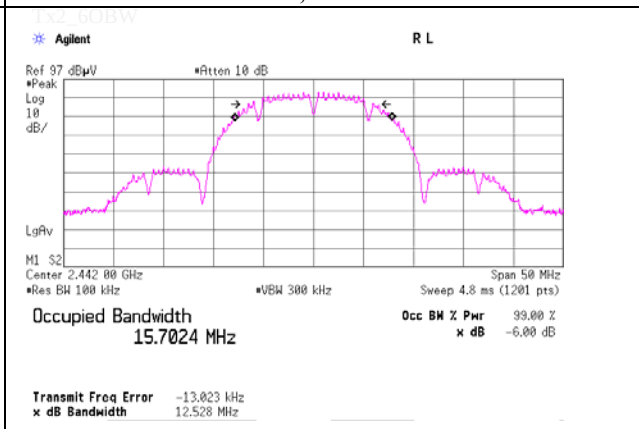
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	June 11, 2014	
Temperature / Humidity	22deg.C , 53%RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11b, PN9, worst data mode 1Mbps	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2412.0000	12.146	> 0.500
2442.0000	12.528	> 0.500
2472.0000	12.590	> 0.500

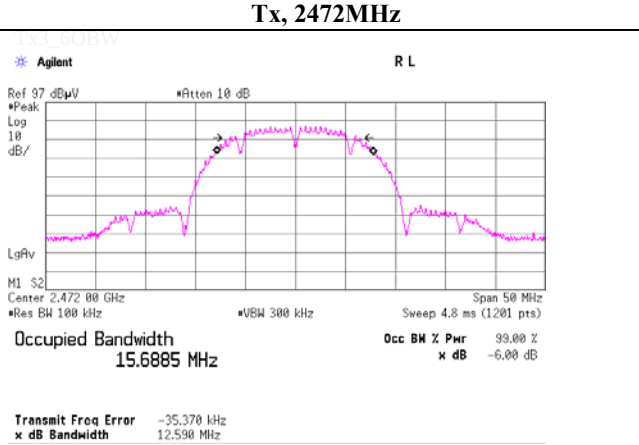
Tx, 2412MHz



Tx, 2442MHz



Tx, 2472MHz



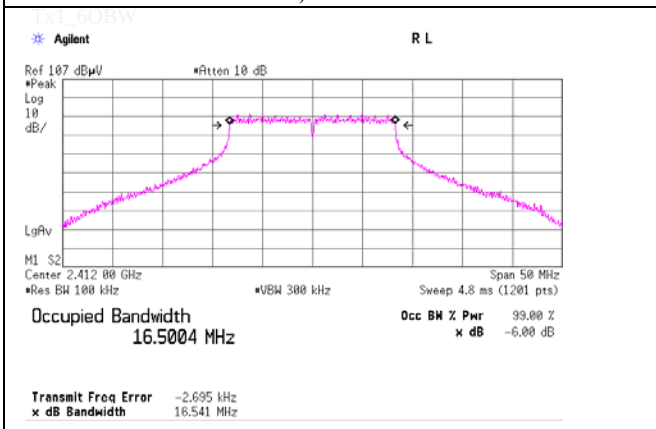
UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

-6dB Bandwidth

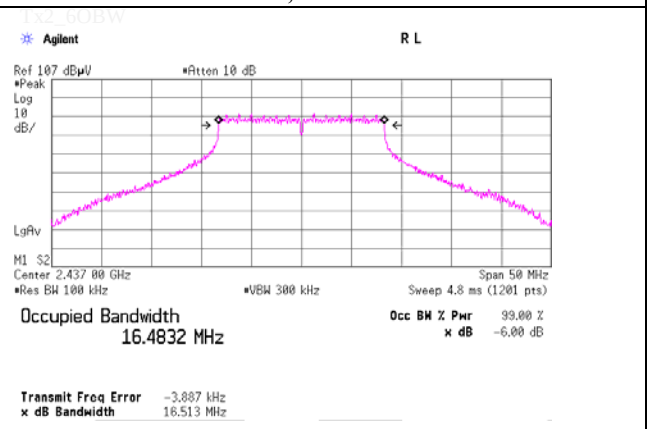
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	June 11, 2014	
Temperature / Humidity	22deg.C , 53%RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11g, PN9, worst data mode 24Mbps	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2412.0000	16.541	> 0.500
2437.0000	16.513	> 0.500
2462.0000	16.511	> 0.500

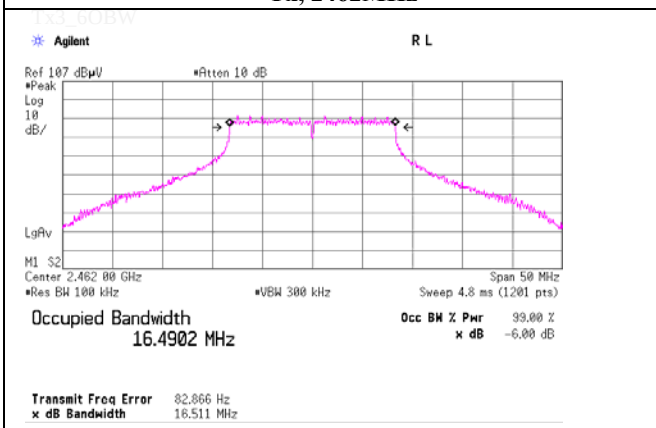
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	June 10, 2014	
Temperature / Humidity	25deg.C , 55%RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11b, PN9,	worst data mode : 1 Mbps

(* P/M: Power Meter with power sensor)

Ch	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]
Low	2412.0	-4.56	2.12	9.90	7.46	5.57	30.00	1000	22.54
Mid	2442.0	-4.36	2.12	9.89	7.65	5.82	30.00	1000	22.35
High	2472.0	-9.84	2.14	9.89	2.19	1.66	30.00	1000	27.81

Sample Calculation:
Result = Reading + Cable Loss + Atten. Loss

[Pre check]

Data rate [Mbps]	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]	
1	2442.0	-4.36	2.12	9.89	**7.65**	5.82	30.00	1000	**22.35**	**Worst**
2	2442.0	-4.39	2.12	9.89	7.62	5.78	30.00	1000	22.38	
5.5	2442.0	-4.43	2.12	9.89	7.58	5.73	30.00	1000	22.42	
11	2442.0	-4.42	2.12	9.89	7.59	5.74	30.00	1000	22.41	

Sample Calculation:
Result = Reading + Cable Loss + Atten. Loss

UL Japan, Inc.
Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Maximum Conducted Output Power (Reference Data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	June 11, 2014	
Temperature / Humidity	22deg.C , 53%RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11b, PN9,	worst data mode : 1 Mbps

(* P/M: Power Meter with power sensor, AV: Average)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result [dBm]	Result [mW]
Low	2412.0	-7.27	2.12	9.90	-0.01	4.74	2.98
Mid	2442.0	-7.04	2.12	9.89	-0.01	4.96	3.13
High	2472.0	-12.78	2.14	9.89	-0.01	-0.76	0.84

Sample Calculation:
Result = Reading + Cable Loss + Atten. Loss
E.I.R.P = Result + Antenna Gain

[Pre check]

	Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result [dBm]	Result [mW]
	1	2442.0	-7.04	2.12	9.89	-0.01	**4.96**	3.13
	2	2442.0	-7.12	2.12	9.89	-0.01	4.88	3.08
	5.5	2442.0	-7.13	2.12	9.89	-0.01	4.87	3.07
	11	2442.0	-7.14	2.12	9.89	-0.01	4.86	3.06

Sample Calculation:
Result = Reading + Cable Loss + Atten. Loss

Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	June 10, 2014	
Temperature / Humidity	25deg.C , 55%RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11g, PN9,	worst data mode : 24 Mbps

(* P/M: Power Meter with power sensor)

Ch	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]
Low	2412.0	1.55	1.52	9.90	12.97	19.82	30.00	1000	17.03
Mid	2437.0	1.73	1.52	9.90	13.15	20.65	30.00	1000	16.85
High	2462.0	1.64	1.53	9.90	13.07	20.28	30.00	1000	16.93

Sample Calculation:
Result = Reading + Cable Loss + Atten. Loss

[Pre check]

	Data rate [Mbps]	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]	
	6	2437.0	1.05	1.52	9.90	12.47	17.66	30.00	1000	17.53	
	9	2437.0	1.27	1.52	9.90	12.69	18.58	30.00	1000	17.31	
	12	2437.0	1.41	1.52	9.90	12.83	19.19	30.00	1000	17.17	
	18	2437.0	1.56	1.52	9.90	12.98	19.86	30.00	1000	17.02	
	24	2437.0	1.73	1.52	9.90	**13.15**	20.65	30.00	1000	**16.85**	**Worst**
	36	2437.0	0.41	1.52	9.90	11.83	15.24	30.00	1000	18.17	
	48	2437.0	-0.03	1.52	9.90	11.39	13.77	30.00	1000	18.61	
	54	2437.0	0.05	1.52	9.90	11.47	14.03	30.00	1000	18.53	

Sample Calculation:
Result = Reading + Cable Loss + Atten. Loss

Maximum Conducted Output Power (Reference data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	June 11, 2014	
Temperature / Humidity	22deg.C , 53%RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11g, PN9,	worst data mode : 12 Mbps

(* P/M: Power Meter with power sensor, AV: Average)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result [dBm]	Result [mW]
Low	2412.0	-7.22	1.52	9.90	-0.01	4.19	2.62
Mid	2437.0	-7.35	1.52	9.90	-0.01	4.06	2.55
High	2462.0	-7.31	1.53	9.90	-0.01	4.11	2.58

Sample Calculation:
Result = Reading + Cable Loss + Atten. Loss
E.I.R.P = Result + Antenna Gain

[Pre check]

	Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result [dBm]	Result [mW]
	6	2437.0	-7.37	1.52	9.90	-0.01	4.04	2.54
	9	2437.0	-7.40	1.52	9.90	-0.01	4.01	2.52
	12	2437.0	-7.35	1.52	9.90	-0.01	**4.06**	2.55
	18	2437.0	-7.36	1.52	9.90	-0.01	4.05	2.54
	24	2437.0	-7.37	1.52	9.90	-0.01	4.04	2.54
	36	2437.0	-8.35	1.52	9.90	-0.01	3.06	2.02
	48	2437.0	-8.38	1.52	9.90	-0.01	3.03	2.01
	54	2437.0	-8.88	1.52	9.90	-0.01	2.53	1.79

Sample Calculation:
Result = Reading + Cable Loss + Atten. Loss

Radiated Emission

Test place	No.3 Semi Anechoic Chamber
Date	June 21,2014
Temperature / Humidity	22 deg.C, 54 %RH
Engineer	Wataru Kojima
Mode	Tx, IEEE802.11g, PN9, 2437 MHz
Remarks	X'tal A Mitsumi AC adaptor

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	104.731	QP	47.7	10.7	7.2	32.1	33.5	43.5	**10.0**	309	76	
Hori.	268.117	QP	39.7	17.7	8.2	32.0	33.6	46.0	12.4	127	342	
Hori.	274.913	QP	38.4	17.9	8.3	32.0	32.6	46.0	13.4	129	333	
Hori.	402.172	QP	29.1	16.4	8.8	32.0	22.3	46.0	23.7	100	182	
Vert.	45.828	QP	39.9	12.4	6.7	32.2	26.8	40.0	13.2	100	180	
Vert.	104.731	QP	42.7	10.7	7.2	32.1	28.5	43.5	15.0	121	212	
Vert.	130.916	QP	36.1	13.8	7.3	32.1	25.1	43.5	18.4	100	226	
Vert.	335.146	QP	29.7	14.7	8.6	32.0	21.0	46.0	25.0	134	178	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator) - Gain(Amprifier)

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber
Date	June 21,2014
Temperature / Humidity	22 deg.C, 54 %RH
Engineer	Wataru Kojima
Mode	Tx, IEEE802.11g, PN9, 2437 MHz
Remarks	X'tal A Nichicon AC adaptor

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	104.733	QP	49.0	10.7	7.2	32.1	34.8	43.5	**8.7**	295	253	
Hori.	274.908	QP	35.8	17.9	8.3	32.0	30.0	46.0	16.0	125	177	
Hori.	281.475	QP	36.2	18.2	8.3	32.0	30.7	46.0	15.3	124	306	
Hori.	335.144	QP	35.6	14.7	8.6	32.0	26.9	46.0	19.1	100	80	
Vert.	45.820	QP	38.6	12.4	6.7	32.2	25.5	40.0	14.5	100	230	
Vert.	52.374	QP	40.5	10.1	6.7	32.2	25.1	40.0	14.9	100	185	
Vert.	104.733	QP	42.3	10.7	7.2	32.1	28.1	43.5	15.4	178	213	
Vert.	335.144	QP	28.3	14.7	8.6	32.0	19.6	46.0	26.4	146	173	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator) - Gain(Amprifier)

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber
Date	June 21,2014
Temperature / Humidity	22 deg.C, 54 %RH
Engineer	Wataru Kojima
Mode	Tx, IEEE802.11g, PN9, 2437 MHz
Remarks	X'tal A Tabuchi AC adaptor

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	104.733	QP	46.7	10.7	7.2	32.1	32.5	43.5	**11.0**	162	268	
Hori.	229.099	QP	36.7	16.8	8.0	32.0	29.5	46.0	16.5	144	182	
Hori.	281.477	QP	36.0	18.2	8.3	32.0	30.5	46.0	15.5	125	96	
Hori.	335.144	QP	36.0	14.7	8.6	32.0	27.3	46.0	18.7	100	286	
Vert.	45.824	QP	36.2	12.4	6.7	32.2	23.1	40.0	16.9	100	185	
Vert.	104.733	QP	40.7	10.7	7.2	32.1	26.5	43.5	17.0	126	228	
Vert.	130.917	QP	40.2	13.8	7.3	32.1	29.2	43.5	14.3	100	221	
Vert.	402.171	QP	27.6	16.4	8.8	32.0	20.8	46.0	25.2	127	80	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator) - Gain(Amprifier)

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber
Date	June 21,2014
Temperature / Humidity	22 deg.C, 54 %RH
Engineer	Wataru Kojima
Mode	Tx, IEEE802.11g, PN9, 2437 MHz
Remarks	X'tal B Mitsumi AC adaptor

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	104.730	QP	37.2	10.7	7.2	32.1	23.0	43.5	20.5	159	273	
Hori.	261.823	QP	31.3	17.4	8.2	32.0	24.9	46.0	21.1	129	74	
Hori.	268.107	QP	34.1	17.7	8.2	32.0	28.0	46.0	18.0	131	73	
Hori.	335.131	QP	31.6	14.7	8.6	32.0	22.9	46.0	23.1	100	298	
Hori.	670.310	QP	29.8	19.4	9.8	31.9	27.1	46.0	18.9	150	358	
Vert.	45.812	QP	35.7	12.4	6.7	32.2	22.6	40.0	**17.4**	100	51	
Vert.	115.052	QP	28.6	12.3	7.1	32.1	15.9	43.5	27.6	100	168	
Vert.	335.131	QP	25.2	14.7	8.6	32.0	16.5	46.0	29.5	100	151	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator) - Gain(Amprifier)

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber
Date	June 21,2014
Temperature / Humidity	22 deg.C, 54 %RH
Engineer	Wataru Kojima
Mode	Tx, IEEE802.11g, PN9, 2437 MHz
Remarks	X'tal B Nichicon AC adaptor

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	98.169	QP	31.8	9.7	7.3	32.1	16.7	43.5	26.8	200	244	
Hori.	104.730	QP	38.2	10.7	7.2	32.1	24.0	43.5	19.5	172	265	
Hori.	209.459	QP	28.5	16.6	7.9	32.1	20.9	43.5	22.6	155	312	
Hori.	268.108	QP	33.9	17.7	8.2	32.0	27.8	46.0	**18.2**	131	234	
Hori.	335.134	QP	34.2	14.7	8.6	32.0	25.5	46.0	20.5	100	291	
Vert.	45.823	QP	34.0	12.4	6.7	32.2	20.9	40.0	19.1	100	182	
Vert.	59.495	QP	33.6	8.2	6.6	32.2	16.2	40.0	23.8	100	88	
Vert.	335.134	QP	27.0	14.7	8.6	32.0	18.3	46.0	27.7	133	177	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator) - Gain(Amprifier)

Radiated Emission

Test place	No.3 Semi Anechoic Chamber
Date	June 21,2014
Temperature / Humidity	22 deg.C, 54 %RH
Engineer	Wataru Kojima
Mode	Tx, IEEE802.11g, PN9, 2437 MHz
Remarks	X'tal B Tabuchi AC adaptor

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	104.733	QP	37.4	10.7	7.2	32.1	23.2	43.5	20.3	173	266	
Hori.	210.430	QP	27.1	16.6	7.9	32.1	19.5	43.5	24.0	150	339	
Hori.	268.108	QP	33.0	17.7	8.2	32.0	26.9	46.0	19.1	126	231	
Hori.	335.135	QP	34.4	14.7	8.6	32.0	25.7	46.0	20.3	100	298	
Hori.	670.270	QP	30.9	19.4	9.8	31.9	28.2	46.0	**17.8**	136	152	
Vert.	39.247	QP	28.3	14.8	6.5	32.2	17.4	40.0	22.6	100	349	
Vert.	335.135	QP	27.7	14.7	8.6	32.0	19.0	46.0	27.0	153	166	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator) - Gain(Amprifier)

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber		
Date	June 18,2014	June 19,2014	June 25,2014
Temperature / Humidity	23 deg.C, 53 %RH	25 deg.C, 50 %RH	22 deg.C, 50 %RH
Engineer	Akio Hayashi	Shinichi Takano	Akio Hayashi
Mode	Tx, IEEE802.11b, PN9,	2412 MHz	
Remarks	X'tal A		

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2390.000	PK	46.6	26.8	14.6	41.1	46.9	73.9	27.0	100	122	
Hori.	4824.000	PK	45.5	31.1	7.5	39.8	44.3	73.9	29.6	100	0	
Hori.	7236.000	PK	45.5	37.1	8.6	40.2	51.0	73.9	22.9	100	0	
Hori.	9648.000	PK	45.5	38.6	9.6	40.1	53.6	73.9	20.3	100	0	
Hori.	12060.000	PK	46.7	39.6	10.7	39.6	57.4	73.9	16.5	100	0	
Hori.	2390.000	AV	36.2	26.8	14.6	41.1	36.5	53.9	17.4	100	122	
Hori.	4824.000	AV	35.2	31.1	7.5	39.8	34.0	53.9	19.9	100	0	
Hori.	7236.000	AV	36.0	37.1	8.6	40.2	41.5	53.9	12.4	100	0	
Hori.	9648.000	AV	36.4	38.6	9.6	40.1	44.5	53.9	9.4	100	0	
Hori.	12060.000	AV	36.7	39.6	10.7	39.6	47.4	53.9	**6.5**	100	0	
Vert.	2390.000	PK	45.5	26.8	14.6	41.1	45.8	73.9	28.1	100	117	
Vert.	4824.000	PK	44.4	31.1	7.5	39.8	43.2	73.9	30.7	100	0	
Vert.	7236.000	PK	45.6	37.1	8.6	40.2	51.1	73.9	22.8	100	0	
Vert.	9648.000	PK	45.2	38.6	9.6	40.1	53.3	73.9	20.6	100	0	
Vert.	12060.000	PK	45.3	39.6	10.7	39.6	56.0	73.9	17.9	100	0	
Vert.	2390.000	AV	36.1	26.8	14.6	41.1	36.4	53.9	17.5	100	117	
Vert.	4824.000	AV	35.2	31.1	7.5	39.8	34.0	53.9	19.9	100	0	
Vert.	7236.000	AV	36.3	37.1	8.6	40.2	41.8	53.9	12.1	100	0	
Vert.	9648.000	AV	36.2	38.6	9.6	40.1	44.3	53.9	9.6	100	0	
Vert.	12060.000	AV	36.6	39.6	10.7	39.6	47.3	53.9	6.6	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

20dBc Data Sheet **(RBW 100kHz, VBW 300kHz)**

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	87.5	26.8	14.6	41.1	87.8	-	-	
Hori.	2397.011	PK	50.3	26.8	14.6	41.1	50.6	67.8	17.2	
Hori.	2400.000	PK	47.7	26.8	14.6	41.1	48.0	67.8	19.8	
Vert.	2412.000	PK	85.7	26.8	14.6	41.1	86.0	-	-	
Vert.	2397.020	PK	49.5	26.8	14.6	41.1	49.8	66.0	16.2	
Vert.	2400.000	PK	46.1	26.8	14.6	41.1	46.4	66.0	19.6	

Result = Reading + Ant.Fac. + Loss(Cable+Attenuator) - Gain(Amplifier)

Radiated Emission

Test place	No.3 Semi Anechoic Chamber		
Date	June 18,2014	June 19,2014	June 25,2014
Temperature / Humidity	23 deg.C, 53 %RH	25 deg.C, 50 %RH	22 deg.C, 50 %RH
Engineer	Akio Hayashi	Shinichi Takano	Akio Hayashi
Mode	Tx, IEEE802.11b, PN9,	2442 MHz	
Remarks	X'tal A		

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	4884.000	PK	44.6	31.4	7.4	39.7	43.7	73.9	30.2	100	0	
Hori.	7326.000	PK	45.5	37.2	8.6	40.3	51.0	73.9	22.9	100	0	
Hori.	9768.000	PK	44.5	38.8	9.6	40.0	52.9	73.9	21.0	100	0	
Hori.	12210.000	PK	45.4	39.6	10.8	39.8	56.0	73.9	17.9	100	0	
Hori.	4884.000	AV	35.8	31.4	7.4	39.7	34.9	53.9	19.0	100	0	
Hori.	7326.000	AV	36.7	37.2	8.6	40.3	42.2	53.9	11.7	100	0	
Hori.	9768.000	AV	36.6	38.8	9.6	40.0	45.0	53.9	8.9	100	0	
Hori.	12210.000	AV	36.8	39.6	10.8	39.8	47.4	53.9	**6.5**	100	0	
Vert.	4884.000	PK	44.9	31.4	7.4	39.7	44.0	73.9	29.9	100	0	
Vert.	7326.000	PK	44.7	37.2	8.6	40.3	50.2	73.9	23.7	100	0	
Vert.	9768.000	PK	45.2	38.8	9.6	40.0	53.6	73.9	20.3	100	0	
Vert.	12210.000	PK	45.2	39.6	10.8	39.8	55.8	73.9	18.1	100	0	
Vert.	4884.000	AV	36.0	31.4	7.4	39.7	35.1	53.9	18.8	100	0	
Vert.	7326.000	AV	36.5	37.2	8.6	40.3	42.0	53.9	11.9	100	0	
Vert.	9768.000	AV	35.8	38.8	9.6	40.0	44.2	53.9	9.7	100	0	
Vert.	12210.000	AV	36.8	39.6	10.8	39.8	47.4	53.9	**6.5**	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber		
Date	June 18,2014	June 19,2014	June 25,2014
Temperature / Humidity	23 deg.C, 53 %RH	25 deg.C, 50 %RH	22 deg.C, 50 %RH
Engineer	Akio Hayashi	Shinichi Takano	Akio Hayashi
Mode	Tx, IEEE802.11b, PN9,	2472 MHz	
Remarks	X'tal A		

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	47.7	26.9	14.7	41.1	48.2	73.9	25.7	100	112	
Hori.	2484.523	PK	47.9	26.9	14.7	41.1	48.4	73.9	25.5	100	112	
Hori.	4944.000	PK	44.2	31.7	7.5	39.6	43.8	73.9	30.1	100	0	
Hori.	7416.000	PK	44.1	37.3	8.8	40.4	49.8	73.9	24.1	100	0	
Hori.	9888.000	PK	44.4	38.9	9.6	39.9	53.0	73.9	20.9	100	0	
Hori.	12360.000	PK	43.7	39.7	10.8	39.9	54.3	73.9	19.6	100	0	
Hori.	2483.500	AV	40.6	26.9	14.7	41.1	41.1	53.9	12.8	100	112	
Hori.	2484.523	AV	40.9	26.9	14.7	41.1	41.4	53.9	12.5	100	112	
Hori.	4944.000	AV	35.1	31.7	7.5	39.6	34.7	53.9	19.2	100	0	
Hori.	7416.000	AV	35.6	37.3	8.8	40.4	41.3	53.9	12.6	100	0	
Hori.	9888.000	AV	35.8	38.9	9.6	39.9	44.4	53.9	9.5	100	0	
Hori.	12360.000	AV	34.8	39.7	10.8	39.9	45.4	53.9	**8.5**	100	0	
Vert.	2483.500	PK	47.2	26.9	14.7	41.1	47.7	73.9	26.2	102	101	
Vert.	2484.520	PK	48.5	26.9	14.7	41.1	49.0	73.9	24.9	102	101	
Vert.	4944.000	PK	44.6	31.7	7.5	39.6	44.2	73.9	29.7	100	0	
Vert.	7416.000	PK	45.1	37.3	8.8	40.4	50.8	73.9	23.1	100	0	
Vert.	9888.000	PK	44.1	38.9	9.6	39.9	52.7	73.9	21.2	100	0	
Vert.	12360.000	PK	43.6	39.7	10.8	39.9	54.2	73.9	19.7	100	0	
Vert.	2483.500	AV	41.2	26.9	14.7	41.1	41.7	53.9	12.2	102	101	
Vert.	2484.520	AV	41.2	26.9	14.7	41.1	41.7	53.9	12.2	102	101	
Vert.	4944.000	AV	35.1	31.7	7.5	39.6	34.7	53.9	19.2	100	0	
Vert.	7416.000	AV	35.4	37.3	8.8	40.4	41.1	53.9	12.8	100	0	
Vert.	9888.000	AV	35.2	38.9	9.6	39.9	43.8	53.9	10.1	100	0	
Vert.	12360.000	AV	34.7	39.7	10.8	39.9	45.3	53.9	8.6	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber		
Date	June 18,2014	June 19,2014	June 25,2014
Temperature / Humidity	23 deg.C, 53 %RH	25 deg.C, 50 %RH	22 deg.C, 50 %RH
Engineer	Akio Hayashi	Shinichi Takano	Akio Hayashi
Mode	Tx, IEEE802.11g, PN9,	2412 MHz	
Remarks	X'tal A		

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2390.000	PK	52.2	26.8	14.6	41.1	52.5	73.9	21.4	100	127	
Hori.	4824.000	PK	44.6	31.1	7.5	39.8	43.4	73.9	30.5	100	0	
Hori.	7236.000	PK	45.4	37.1	8.6	40.2	50.9	73.9	23.0	100	0	
Hori.	9648.000	PK	46.1	38.6	9.6	40.1	54.2	73.9	19.7	100	0	
Hori.	12060.000	PK	46.5	39.6	10.7	39.6	57.2	73.9	16.7	100	0	
Hori.	2390.000	AV	40.4	26.8	14.6	41.1	40.7	53.9	**13.2**	100	127	
Vert.	2390.000	PK	51.0	26.8	14.6	41.1	51.3	73.9	22.6	152	95	
Vert.	4824.000	PK	46.2	31.1	7.5	39.8	45.0	73.9	28.9	100	0	
Vert.	7236.000	PK	45.8	37.1	8.6	40.2	51.3	73.9	22.6	100	0	
Vert.	9648.000	PK	46.6	38.6	9.6	40.1	54.7	73.9	19.2	100	0	
Vert.	12060.000	PK	46.5	39.6	10.7	39.6	57.2	73.9	16.7	100	0	
Vert.	2390.000	AV	38.4	26.8	14.6	41.1	38.7	53.9	15.2	152	95	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	4824.000	AV	36.5	31.1	7.5	39.8	0.1	35.4	53.9	18.5	
Hori.	7236.000	AV	37.3	37.1	8.6	40.2	0.1	42.9	53.9	11.0	
Hori.	9648.000	AV	37.4	38.6	9.6	40.1	0.1	45.6	53.9	8.3	
Hori.	12060.000	AV	37.7	39.6	10.7	39.6	0.1	48.5	53.9	**5.4**	
Vert.	4824.000	AV	35.5	31.1	7.5	39.8	0.1	34.4	53.9	19.5	
Vert.	7236.000	AV	36.4	37.1	8.6	40.2	0.1	42.0	53.9	11.9	
Vert.	9648.000	AV	36.7	38.6	9.6	40.1	0.1	44.9	53.9	9.0	
Vert.	12060.000	AV	36.9	39.6	10.7	39.6	0.1	47.7	53.9	6.2	

Result = Reading + Ant.Fac. + Loss (Cable+Filter(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

20dBc Data Sheet **(RBW 100kHz, VBW 300kHz)**

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	87.2	26.8	14.6	41.1	87.5	-	-	
Hori.	2400.000	PK	57.3	26.8	14.6	41.1	57.6	67.5	9.9	
Vert.	2412.000	PK	84.4	26.8	14.6	41.1	84.7	-	-	
Vert.	2400.000	PK	53.7	26.8	14.6	41.1	54.0	64.7	10.7	

Result = Reading + Ant.Fac. + Loss(Cable+Attenuator) - Gain(Amplifier)

Radiated Emission

Test place	No.3 Semi Anechoic Chamber		
Date	June 18,2014	June 19,2014	June 25,2014
Temperature / Humidity	23 deg.C, 53 %RH	25 deg.C, 50 %RH	22 deg.C, 50 %RH
Engineer	Akio Hayashi	Shinichi Takano	Akio Hayashi
Mode	Tx, IEEE802.11g, PN9,	2437 MHz	
Remarks	X'tal A		

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	4874.000	PK	43.9	31.3	7.5	39.7	43.0	73.9	30.9	100	0	
Hori.	7311.000	PK	43.4	37.2	8.6	40.3	48.9	73.9	25.0	100	0	
Hori.	9748.000	PK	44.7	38.7	9.6	40.0	53.0	73.9	20.9	100	0	
Hori.	12185.000	PK	44.8	39.6	10.8	39.8	55.4	73.9	18.5	100	0	
Vert.	4874.000	PK	44.4	31.3	7.5	39.7	43.5	73.9	30.4	100	0	
Vert.	7311.000	PK	45.4	37.2	8.6	40.3	50.9	73.9	23.0	100	0	
Vert.	9748.000	PK	45.4	38.7	9.6	40.0	53.7	73.9	20.2	100	0	
Vert.	12185.000	PK	45.2	39.6	10.8	39.8	55.8	73.9	**18.1**	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	4874.000	AV	36.2	31.3	7.5	39.7	0.1	35.4	53.9	18.5	
Hori.	7311.000	AV	36.6	37.2	8.6	40.3	0.1	42.2	53.9	11.7	
Hori.	9748.000	AV	37.3	38.7	9.6	40.0	0.1	45.7	53.9	8.2	
Hori.	12185.000	AV	37.5	39.6	10.8	39.8	0.1	48.2	53.9	**5.7**	
Vert.	4874.000	AV	36.1	31.3	7.5	39.7	0.1	35.3	53.9	18.6	
Vert.	7311.000	AV	37.0	37.2	8.6	40.3	0.1	42.6	53.9	11.3	
Vert.	9748.000	AV	37.1	38.7	9.6	40.0	0.1	45.5	53.9	8.4	
Vert.	12185.000	AV	37.3	39.6	10.8	39.8	0.1	48.0	53.9	**5.9**	

Result = Reading + Ant.Fac. + Loss (Cable+Filter(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	No.3 Semi Anechoic Chamber		
Date	June 18,2014	June 19,2014	June 25,2014
Temperature / Humidity	23 deg.C, 53 %RH	25 deg.C, 50 %RH	22 deg.C, 50 %RH
Engineer	Akio Hayashi	Shinichi Takano	Akio Hayashi
Mode	Tx, IEEE802.11g, PN9,	2462 MHz	
Remarks	X'tal A		

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	54.0	26.9	14.7	41.1	54.5	73.9	19.4	100	36	
Hori.	4924.000	PK	44.8	31.6	7.5	39.6	44.3	73.9	29.6	100	0	
Hori.	7386.000	PK	44.7	37.3	8.8	40.4	50.4	73.9	23.5	100	0	
Hori.	9848.000	PK	43.8	38.9	9.6	39.9	52.4	73.9	21.5	100	0	
Hori.	12310.000	PK	43.5	39.6	10.8	39.9	54.0	73.9	19.9	100	0	
Hori.	2483.500	AV	40.0	26.9	14.7	41.1	40.5	53.9	**13.4**	100	36	
Vert.	2483.500	PK	53.3	26.9	14.7	41.1	53.8	73.9	20.1	100	98	
Vert.	4924.000	PK	44.5	31.6	7.5	39.6	44.0	73.9	29.9	100	0	
Vert.	7386.000	PK	45.0	37.3	8.8	40.4	50.7	73.9	23.2	100	0	
Vert.	9848.000	PK	44.6	38.9	9.6	39.9	53.2	73.9	20.7	100	0	
Vert.	12310.000	PK	43.5	39.6	10.8	39.9	54.0	73.9	19.9	100	0	
Vert.	2483.500	AV	39.8	26.9	14.7	41.1	40.3	53.9	13.6	100	98	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	4924.000	AV	35.1	31.6	7.5	39.6	0.1	34.7	53.9	19.2	
Hori.	7386.000	AV	35.5	37.3	8.8	40.4	0.1	41.3	53.9	12.6	
Hori.	9848.000	AV	34.8	38.9	9.6	39.9	0.1	43.5	53.9	10.4	
Hori.	12310.000	AV	34.0	39.6	10.8	39.9	0.1	44.6	53.9	**9.3**	
Vert.	4924.000	AV	35.1	31.6	7.5	39.6	0.1	34.7	53.9	19.2	
Vert.	7386.000	AV	35.5	37.3	8.8	40.4	0.1	41.3	53.9	12.6	
Vert.	9848.000	AV	35.1	38.9	9.6	39.9	0.1	43.8	53.9	10.1	
Vert.	12310.000	AV	33.6	39.6	10.8	39.9	0.1	44.2	53.9	9.7	

Result = Reading + Ant.Fac. + Loss (Cable+Filter(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	No.3 Semi Anechoic Chamber		
Date	June 18,2014	June 19,2014	June 25,2014
Temperature / Humidity	23 deg.C, 53 %RH	25 deg.C, 50 %RH	22 deg.C, 50 %RH
Engineer	Akio Hayashi	Shinichi Takano	Akio Hayashi
Mode	Tx, IEEE802.11b, PN9,	2412 MHz	
Remarks	X'tal B		

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2390.000	PK	44.7	26.8	14.6	41.1	45.0	73.9	28.9	100	109	
Hori.	4824.000	PK	45.6	31.1	7.5	39.8	44.4	73.9	29.5	100	0	
Hori.	7236.000	PK	46.3	37.1	8.6	40.2	51.8	73.9	22.1	100	0	
Hori.	9648.000	PK	46.6	38.6	9.6	40.1	54.7	73.9	19.2	100	0	
Hori.	12060.000	PK	45.9	39.6	10.7	39.6	56.6	73.9	17.3	100	0	
Hori.	2390.000	AV	36.8	26.8	14.6	41.1	37.1	53.9	16.8	100	109	
Hori.	4824.000	AV	35.3	31.1	7.5	39.8	34.1	53.9	19.8	100	0	
Hori.	7236.000	AV	36.9	37.1	8.6	40.2	42.4	53.9	11.5	100	0	
Hori.	9648.000	AV	36.8	38.6	9.6	40.1	44.9	53.9	9.0	100	0	
Hori.	12060.000	AV	36.4	39.6	10.7	39.6	47.1	53.9	6.8	100	0	
Vert.	2390.000	PK	45.1	26.8	14.6	41.1	45.4	73.9	28.5	110	94	
Vert.	4824.000	PK	45.2	31.1	7.5	39.8	44.0	73.9	29.9	100	0	
Vert.	7236.000	PK	46.5	37.1	8.6	40.2	52.0	73.9	21.9	100	0	
Vert.	9648.000	PK	46.8	38.6	9.6	40.1	54.9	73.9	19.0	100	0	
Vert.	12060.000	PK	46.8	39.6	10.7	39.6	57.5	73.9	16.4	100	0	
Vert.	2390.000	AV	36.2	26.8	14.6	41.1	36.5	53.9	17.4	110	94	
Vert.	4824.000	AV	35.6	31.1	7.5	39.8	34.4	53.9	19.5	100	0	
Vert.	7236.000	AV	36.7	37.1	8.6	40.2	42.2	53.9	11.7	100	0	
Vert.	9648.000	AV	36.6	38.6	9.6	40.1	44.7	53.9	9.2	100	0	
Vert.	12060.000	AV	36.6	39.6	10.7	39.6	47.3	53.9	**6.6**	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

20dBc Data Sheet **(RBW 100kHz, VBW 300kHz)**

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	87.2	26.8	14.6	41.1	87.5	-	-	
Hori.	2397.526	PK	50.9	26.8	14.6	41.1	51.2	67.5	16.3	
Hori.	2400.000	PK	47.3	26.8	14.6	41.1	47.6	67.5	19.9	
Vert.	2412.000	PK	86.4	26.8	14.6	41.1	86.7	-	-	
Vert.	2397.512	PK	49.9	26.8	14.6	41.1	50.2	66.7	16.5	
Vert.	2400.000	PK	46.4	26.8	14.6	41.1	46.7	66.7	20.0	

Result = Reading + Ant.Fac. + Loss(Cable+Attenuator) - Gain(Amplifier)

Radiated Emission

Test place	No.3 Semi Anechoic Chamber		
Date	June 18,2014	June 19,2014	June 25,2014
Temperature / Humidity	23 deg.C, 53 %RH	25 deg.C, 50 %RH	22 deg.C, 50 %RH
Engineer	Akio Hayashi	Shinichi Takano	Akio Hayashi
Mode	Tx, IEEE802.11b, PN9,	2442 MHz	
Remarks	X'tal B		

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	4884.000	PK	44.4	31.4	7.4	39.7	43.5	73.9	30.4	100	0	
Hori.	7326.000	PK	45.3	37.2	8.6	40.3	50.8	73.9	23.1	100	0	
Hori.	9768.000	PK	44.5	38.8	9.6	40.0	52.9	73.9	21.0	100	0	
Hori.	12210.000	PK	45.5	39.6	10.8	39.8	56.1	73.9	17.8	100	0	
Hori.	4884.000	AV	35.9	31.4	7.4	39.7	35.0	53.9	18.9	100	0	
Hori.	7326.000	AV	37.2	37.2	8.6	40.3	42.7	53.9	11.2	100	0	
Hori.	9768.000	AV	36.1	38.8	9.6	40.0	44.5	53.9	9.4	100	0	
Hori.	12210.000	AV	37.1	39.6	10.8	39.8	47.7	53.9	**6.2**	100	0	
Vert.	4884.000	PK	44.7	31.4	7.4	39.7	43.8	73.9	30.1	100	0	
Vert.	7326.000	PK	44.9	37.2	8.6	40.3	50.4	73.9	23.5	100	0	
Vert.	9768.000	PK	44.8	38.8	9.6	40.0	53.2	73.9	20.7	100	0	
Vert.	12210.000	PK	44.8	39.6	10.8	39.8	55.4	73.9	18.5	100	0	
Vert.	4884.000	AV	35.3	31.4	7.4	39.7	34.4	53.9	19.5	100	0	
Vert.	7326.000	AV	35.7	37.2	8.6	40.3	41.2	53.9	12.7	100	0	
Vert.	9768.000	AV	35.1	38.8	9.6	40.0	43.5	53.9	10.4	100	0	
Vert.	12210.000	AV	35.8	39.6	10.8	39.8	46.4	53.9	7.5	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber		
Date	June 18,2014	June 19,2014	June 25,2014
Temperature / Humidity	23 deg.C, 53 %RH	25 deg.C, 50 %RH	22 deg.C, 50 %RH
Engineer	Akio Hayashi	Shinichi Takano	Akio Hayashi
Mode	Tx, IEEE802.11b, PN9,	2472 MHz	
Remarks	X'tal B		

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	47.4	26.9	14.7	41.1	47.9	73.9	26.0	100	24	
Hori.	2484.314	PK	47.5	26.9	14.7	41.1	48.0	73.9	25.9	100	24	
Hori.	4944.000	PK	44.0	31.7	7.5	39.6	43.6	73.9	30.3	100	0	
Hori.	7416.000	PK	44.7	37.3	8.8	40.4	50.4	73.9	23.5	100	0	
Hori.	9888.000	PK	44.9	38.9	9.6	39.9	53.5	73.9	20.4	100	0	
Hori.	12360.000	PK	44.0	39.7	10.8	39.9	54.6	73.9	19.3	100	0	
Hori.	2483.500	AV	40.1	26.9	14.7	41.1	40.6	53.9	13.3	100	24	
Hori.	2484.314	AV	40.7	26.9	14.7	41.1	41.2	53.9	12.7	100	24	
Hori.	4944.000	AV	35.1	31.7	7.5	39.6	34.7	53.9	19.2	100	0	
Hori.	7416.000	AV	35.7	37.3	8.8	40.4	41.4	53.9	12.5	100	0	
Hori.	9888.000	AV	35.7	38.9	9.6	39.9	44.3	53.9	9.6	100	0	
Hori.	12360.000	AV	34.9	39.7	10.8	39.9	45.5	53.9	8.4	100	0	
Vert.	2483.500	PK	47.8	26.9	14.7	41.1	48.3	73.9	25.6	100	100	
Vert.	2484.308	PK	47.9	26.9	14.7	41.1	48.4	73.9	25.5	100	100	
Vert.	4944.000	PK	44.4	31.7	7.5	39.6	44.0	73.9	29.9	100	0	
Vert.	7416.000	PK	44.8	37.3	8.8	40.4	50.5	73.9	23.4	100	0	
Vert.	9888.000	PK	45.2	38.9	9.6	39.9	53.8	73.9	20.1	100	0	
Vert.	12360.000	PK	43.8	39.7	10.8	39.9	54.4	73.9	19.5	100	0	
Vert.	2483.500	AV	38.9	26.9	14.7	41.1	39.4	53.9	14.5	100	100	
Vert.	2484.308	AV	40.7	26.9	14.7	41.1	41.2	53.9	12.7	100	100	
Vert.	4944.000	AV	35.9	31.7	7.5	39.6	35.5	53.9	18.4	100	0	
Vert.	7416.000	AV	36.7	37.3	8.8	40.4	42.4	53.9	11.5	100	0	
Vert.	9888.000	AV	36.6	38.9	9.6	39.9	45.2	53.9	8.7	100	0	
Vert.	12360.000	AV	35.8	39.7	10.8	39.9	46.4	53.9	**7.5**	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber		
Date	June 18,2014	June 19,2014	June 25,2014
Temperature / Humidity	23 deg.C, 53 %RH	25 deg.C, 50 %RH	22 deg.C, 50 %RH
Engineer	Akio Hayashi	Shinichi Takano	Akio Hayashi
Mode	Tx, IEEE802.11g, PN9,	2412 MHz	
Remarks	X'tal B		

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2390.000	PK	53.8	26.8	14.6	41.1	54.1	73.9	19.8	100	130	
Hori.	4824.000	PK	44.7	31.1	7.5	39.8	43.5	73.9	30.4	100	0	
Hori.	7236.000	PK	46.1	37.1	8.6	40.2	51.6	73.9	22.3	100	0	
Hori.	9648.000	PK	45.6	38.6	9.6	40.1	53.7	73.9	20.2	100	0	
Hori.	12060.000	PK	47.8	39.6	10.7	39.6	58.5	73.9	15.4	100	0	
Hori.	2390.000	AV	40.0	26.8	14.6	41.1	40.3	53.9	**13.6**	100	130	
Vert.	2390.000	PK	51.3	26.8	14.6	41.1	51.6	73.9	22.3	100	93	
Vert.	4824.000	PK	44.2	31.1	7.5	39.8	43.0	73.9	30.9	100	0	
Vert.	7236.000	PK	45.6	37.1	8.6	40.2	51.1	73.9	22.8	100	0	
Vert.	9648.000	PK	47.0	38.6	9.6	40.1	55.1	73.9	18.8	100	0	
Vert.	12060.000	PK	46.0	39.6	10.7	39.6	56.7	73.9	17.2	100	0	
Vert.	2390.000	AV	38.0	26.8	14.6	41.1	38.3	53.9	15.6	100	93	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	4824.000	AV	35.6	31.1	7.5	39.8	0.1	34.5	53.9	19.4	
Hori.	7236.000	AV	36.0	37.1	8.6	40.2	0.1	41.6	53.9	12.3	
Hori.	9648.000	AV	36.4	38.6	9.6	40.1	0.1	44.6	53.9	9.3	
Hori.	12060.000	AV	37.0	39.6	10.7	39.6	0.1	47.8	53.9	**6.1**	
Vert.	4824.000	AV	35.6	31.1	7.5	39.8	0.1	34.5	53.9	19.4	
Vert.	7236.000	AV	35.9	37.1	8.6	40.2	0.1	41.5	53.9	12.4	
Vert.	9648.000	AV	36.2	38.6	9.6	40.1	0.1	44.4	53.9	9.5	
Vert.	12060.000	AV	36.9	39.6	10.7	39.6	0.1	47.7	53.9	6.2	

Result = Reading + Ant.Fac. + Loss (Cable+Filter(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

20dBc Data Sheet **(RBW 100kHz, VBW 300kHz)**

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	86.6	26.8	14.6	41.1	86.9	-	-	
Hori.	2400.000	PK	56.8	26.8	14.6	41.1	57.1	66.9	9.8	
Vert.	2412.000	PK	85.6	26.8	14.6	41.1	85.9	-	-	
Vert.	2400.000	PK	55.4	26.8	14.6	41.1	55.7	65.9	10.2	

Result = Reading + Ant.Fac. + Loss(Cable+Attenuator) - Gain(Amplifier)

Radiated Emission

Test place	No.3 Semi Anechoic Chamber		
Date	June 18,2014	June 19,2014	June 25,2014
Temperature / Humidity	23 deg.C, 53 %RH	25 deg.C, 50 %RH	22 deg.C, 50 %RH
Engineer	Akio Hayashi	Shinichi Takano	Akio Hayashi
Mode	Tx, IEEE802.11g, PN9,	2437 MHz	
Remarks	X'tal B		

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	4874.000	PK	43.9	31.3	7.5	39.7	43.0	73.9	30.9	100	0	
Hori.	7311.000	PK	44.4	37.2	8.6	40.3	49.9	73.9	24.0	100	0	
Hori.	9748.000	PK	44.5	38.7	9.6	40.0	52.8	73.9	21.1	100	0	
Hori.	12185.000	PK	45.3	39.6	10.8	39.8	55.9	73.9	**18.0**	100	0	
Vert.	4874.000	PK	43.8	31.3	7.5	39.7	42.9	73.9	31.0	100	0	
Vert.	7311.000	PK	43.6	37.2	8.6	40.3	49.1	73.9	24.8	100	0	
Vert.	9748.000	PK	45.1	38.7	9.6	40.0	53.4	73.9	20.5	100	0	
Vert.	12185.000	PK	44.8	39.6	10.8	39.8	55.4	73.9	18.5	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	4874.000	AV	35.0	31.3	7.5	39.7	0.1	34.2	53.9	19.7	
Hori.	7311.000	AV	35.6	37.2	8.6	40.3	0.1	41.2	53.9	12.7	
Hori.	9748.000	AV	35.8	38.7	9.6	40.0	0.1	44.2	53.9	9.7	
Hori.	12185.000	AV	35.8	39.6	10.8	39.8	0.1	46.5	53.9	**7.4**	
Vert.	4874.000	AV	34.7	31.3	7.5	39.7	0.1	33.9	53.9	20.0	
Vert.	7311.000	AV	35.8	37.2	8.6	40.3	0.1	41.4	53.9	12.5	
Vert.	9748.000	AV	35.5	38.7	9.6	40.0	0.1	43.9	53.9	10.0	
Vert.	12185.000	AV	35.7	39.6	10.8	39.8	0.1	46.4	53.9	7.5	

Result = Reading + Ant.Fac. + Loss (Cable+Filter(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	No.3 Semi Anechoic Chamber		
Date	June 18,2014	June 19,2014	June 25,2014
Temperature / Humidity	23 deg.C, 53 %RH	25 deg.C, 50 %RH	22 deg.C, 50 %RH
Engineer	Akio Hayashi	Shinichi Takano	Akio Hayashi
Mode	Tx, IEEE802.11g, PN9,	2462 MHz	
Remarks	X'tal B		

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	56.7	26.9	14.7	41.1	57.2	73.9	16.7	100	138	
Hori.	4924.000	PK	43.8	31.6	7.5	39.6	43.3	73.9	30.6	100	0	
Hori.	7386.000	PK	44.2	37.3	8.8	40.4	49.9	73.9	24.0	100	0	
Hori.	9848.000	PK	42.1	38.9	9.6	39.9	50.7	73.9	23.2	100	0	
Hori.	12310.000	PK	42.3	39.6	10.8	39.9	52.8	73.9	21.1	100	0	
Hori.	2483.500	AV	45.1	26.9	14.7	41.1	45.6	53.9	**8.3**	100	138	
Vert.	2483.500	PK	55.0	26.9	14.7	41.1	55.5	73.9	18.4	100	95	
Vert.	4924.000	PK	44.1	31.6	7.5	39.6	43.6	73.9	30.3	100	0	
Vert.	7386.000	PK	43.8	37.3	8.8	40.4	49.5	73.9	24.4	100	0	
Vert.	9848.000	PK	42.9	38.9	9.6	39.9	51.5	73.9	22.4	100	0	
Vert.	12310.000	PK	42.3	39.6	10.8	39.9	52.8	73.9	21.1	100	0	
Vert.	2483.500	AV	41.6	26.9	14.7	41.1	42.1	53.9	11.8	100	95	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	4924.000	AV	36.1	31.6	7.5	39.6	0.1	35.7	53.9	18.2	
Hori.	7386.000	AV	36.2	37.3	8.8	40.4	0.1	42.0	53.9	11.9	
Hori.	9848.000	AV	35.3	38.9	9.6	39.9	0.1	44.0	53.9	9.9	
Hori.	12310.000	AV	34.1	39.6	10.8	39.9	0.1	44.7	53.9	9.2	
Vert.	4924.000	AV	36.0	31.6	7.5	39.6	0.1	35.6	53.9	18.3	
Vert.	7386.000	AV	36.0	37.3	8.8	40.4	0.1	41.8	53.9	12.1	
Vert.	9848.000	AV	35.3	38.9	9.6	39.9	0.1	44.0	53.9	9.9	
Vert.	12310.000	AV	34.2	39.6	10.8	39.9	0.1	44.8	53.9	**9.1**	

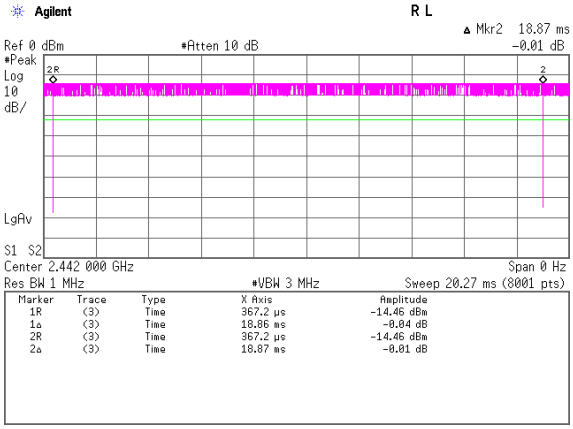
Result = Reading + Ant.Fac. + Loss (Cable+Filter(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	June 11, 2014	
Temperature / Humidity	22deg.C , 53%RH	
Engineer	Akio Hayashi	

Burst rate confirmation

Tx, IEEE802.11b, PN9, worst data mode 1Mbps

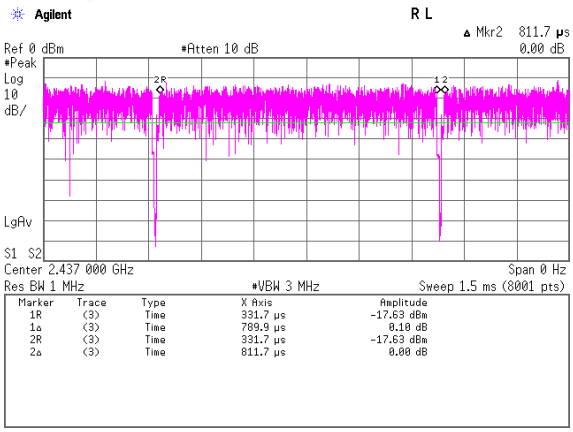
duty cycle = 0.01886 / 0.01887 = 0.999 (99.9%)	
Tx2_duty1  	Tx2_duty2

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	June 11, 2014	
Temperature / Humidity	22deg.C , 53%RH	
Engineer	Akio Hayashi	

Duty Factor Calculation chart

Tx, IEEE802.11g, PN9, worst data mode 24Mbps

Duty Factor: 10log (1/duty cycle) = 0.1dB	
duty cycle = 0.7899375 / 0.8116875 = 0.973 (97.3%)	
Tx2_duty1 	Tx2_duty2

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

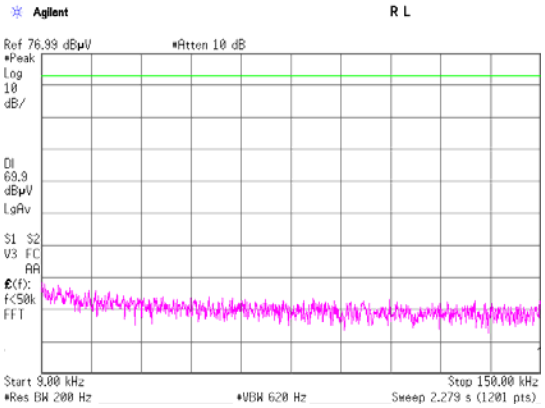
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	June 11, 2014	
Temperature / Humidity	22deg.C , 53%RH	
Engineer	Akio Hayashi	

(Reference chart) Spurious emission (Conducted)

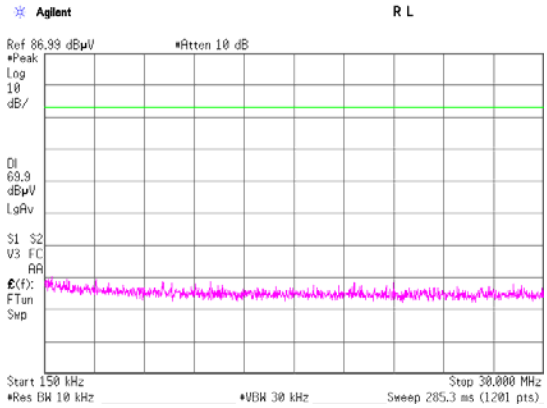
Tx, IEEE802.11b, PN9, worst data mode 1Mbps

Tx, 2412MHz (below 1GHz)

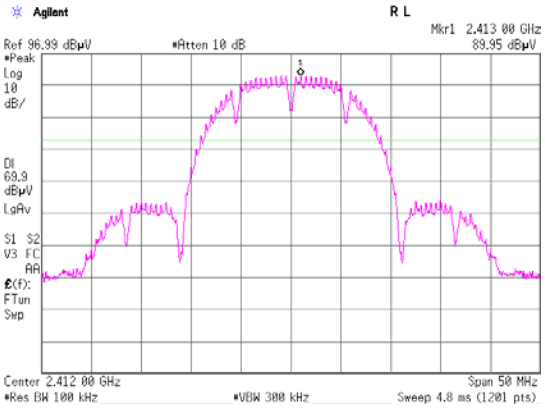
9kHz - 150kHz



150kHz - 30MHz



Carrier / 20dBc limit



UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

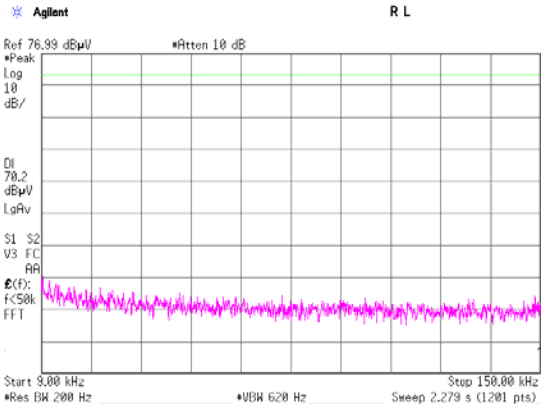
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	June 11, 2014	
Temperature / Humidity	22deg.C , 53%RH	
Engineer	Akio Hayashi	

(Reference chart) Spurious emission (Conducted)

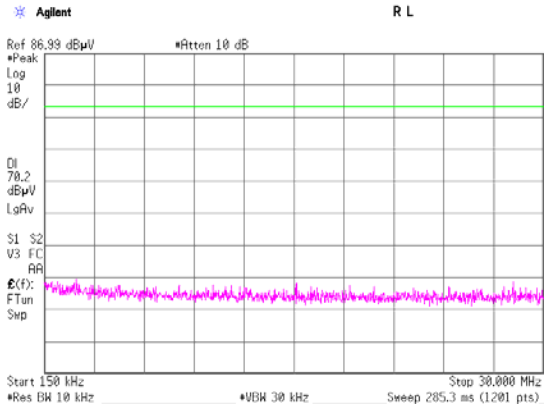
Tx, IEEE802.11b, PN9, worst data mode 1Mbps

Tx, 2442MHz (below 1GHz)

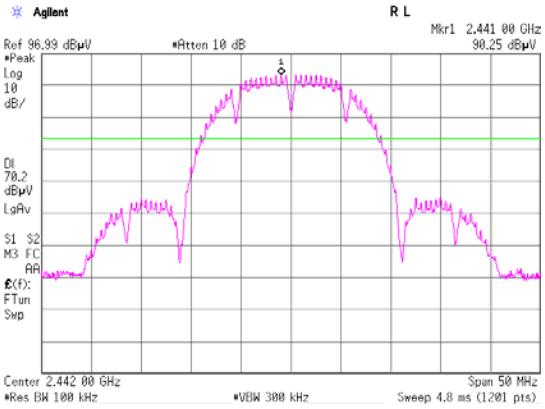
9kHz - 150kHz



150kHz - 30MHz



Carrier / 20dBc limit



UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

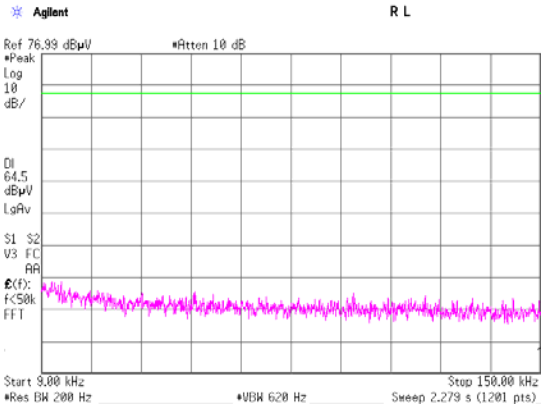
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	June 11, 2014	
Temperature / Humidity	22deg.C , 53%RH	
Engineer	Akio Hayashi	

(Reference chart) Spurious emission (Conducted)

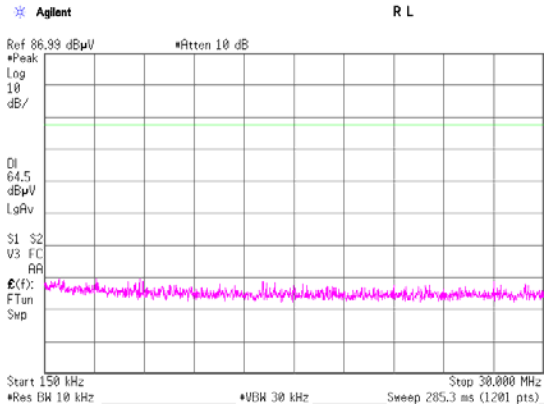
Tx, IEEE802.11b, PN9, worst data mode 1Mbps

Tx, 2472MHz (below 1GHz)

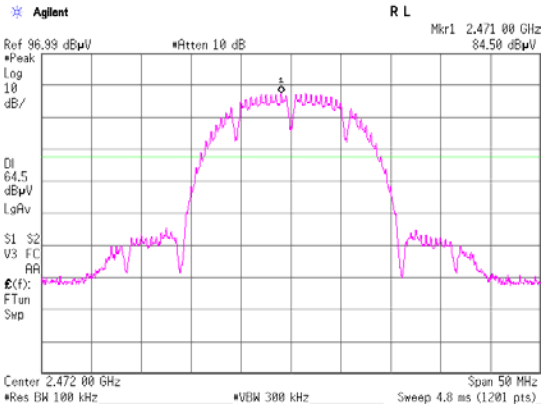
9kHz - 150kHz



150kHz - 30MHz



Carrier / 20dBc limit



UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

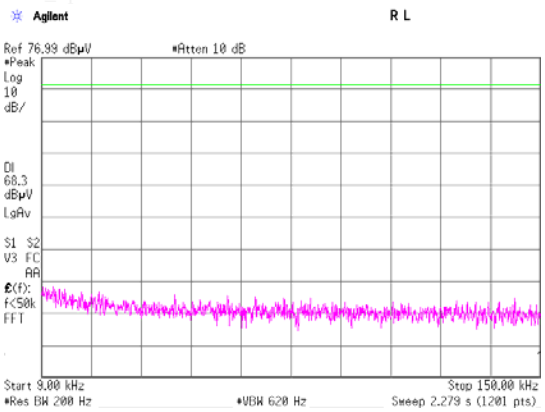
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	June 11, 2014	
Temperature / Humidity	22deg.C , 53%RH	
Engineer	Akio Hayashi	

(Reference chart) Spurious emission (Conducted)

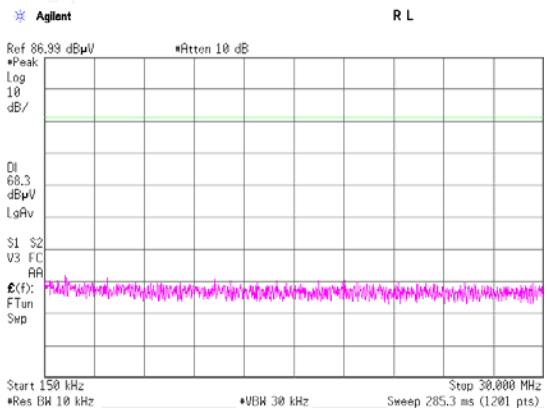
Tx, IEEE802.11g, PN9, worst data mode 24Mbps

Tx, 2412MHz (below 1GHz)

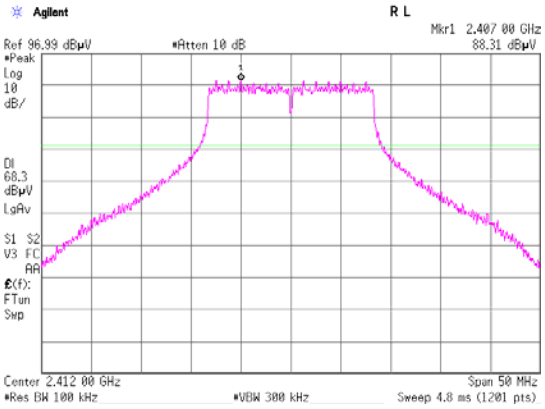
9kHz - 150kHz



150kHz - 30MHz



Carrier / 20dBc limit



UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

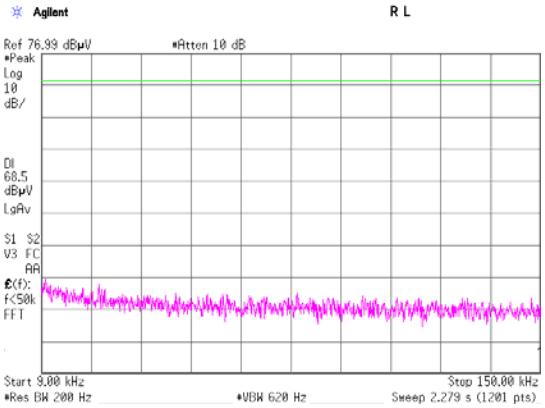
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	June 11, 2014	
Temperature / Humidity	22deg.C , 53%RH	
Engineer	Akio Hayashi	

(Reference chart) Spurious emission (Conducted)

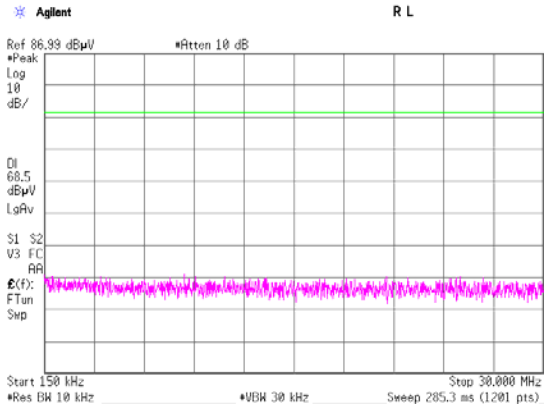
Tx, IEEE802.11g, PN9, worst data mode 24Mbps

Tx, 2437MHz (below 1GHz)

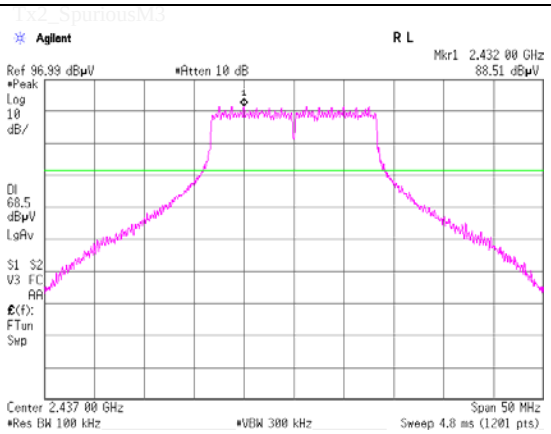
9kHz - 150kHz



150kHz - 30MHz



Carrier / 20dBc limit



UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

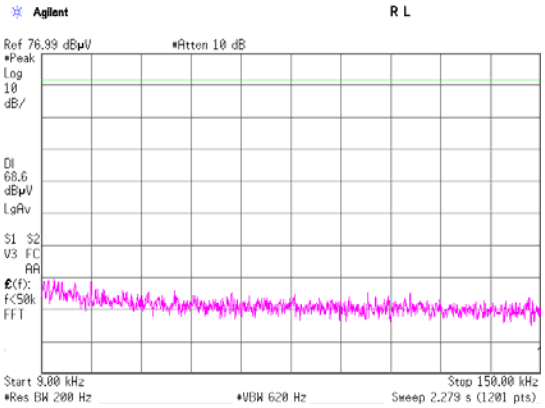
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	June 11, 2014	
Temperature / Humidity	22deg.C , 53%RH	
Engineer	Akio Hayashi	

(Reference chart) Spurious emission (Conducted)

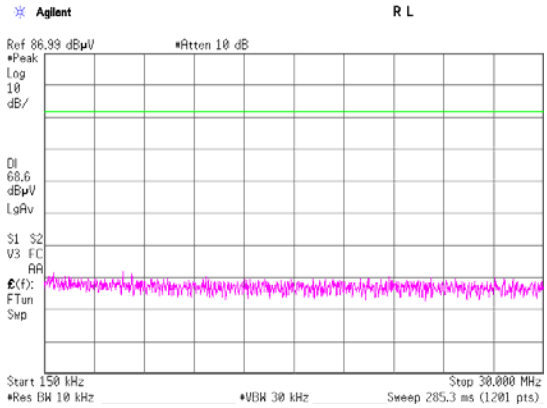
Tx, IEEE802.11g, PN9, worst data mode 24Mbps

Tx, 2462MHz (below 1GHz)

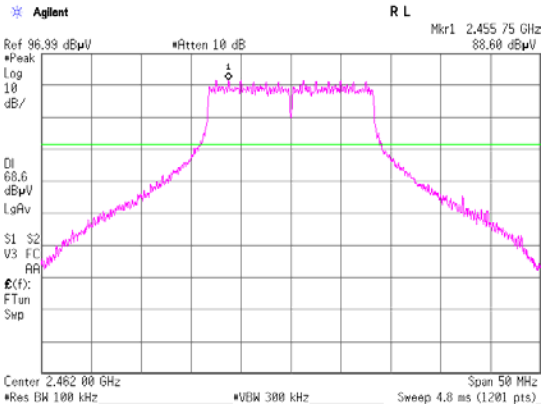
9kHz - 150kHz



150kHz - 30MHz



Carrier / 20dBc limit



UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Maximum Power Spectral Density

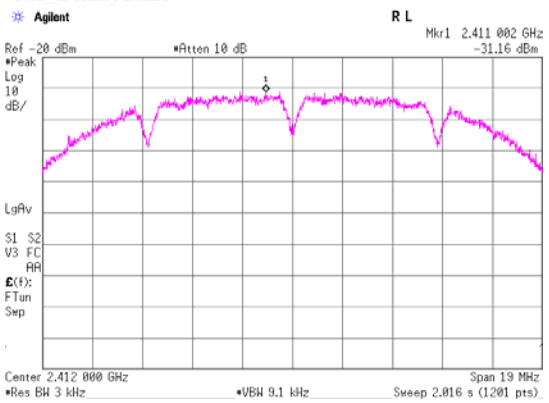
(PKPSD)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	June 11, 2014	
Temperature / Humidity	22deg.C , 53%RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11b, PN9, worst data mode 1Mbps	

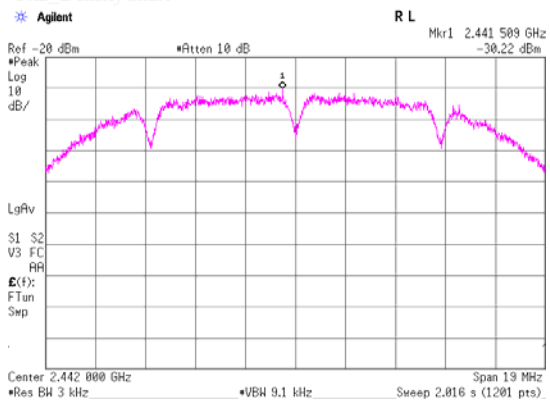
Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2412.0000	2411.00	-31.16	2.12	9.90	-19.14	8.00	27.14
2442.0000	2441.51	-30.22	2.12	9.89	-18.21	8.00	26.21
2472.0000	2471.22	-35.80	2.14	9.89	-23.77	8.00	31.77

Sample Calculation:
Result = Reading + Cable Loss + Atten. Loss

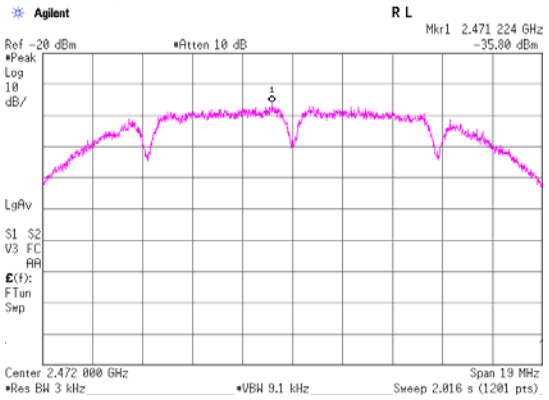
Tx, 2412MHz



Tx, 2442MHz



Tx, 2472MHz



UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Maximum Power Spectral Density

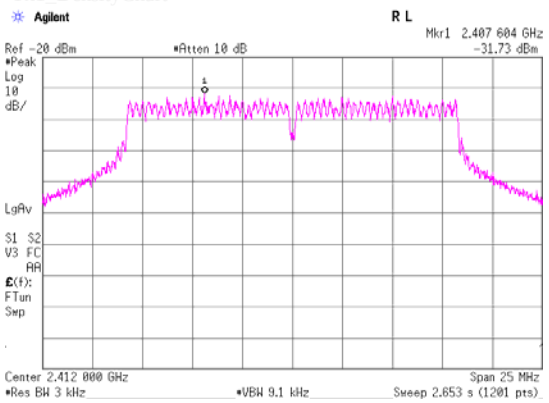
(PKPSD)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	June 11, 2014	
Temperature / Humidity	22deg.C , 53%RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11g, PN9, worst data mode 24Mbps	

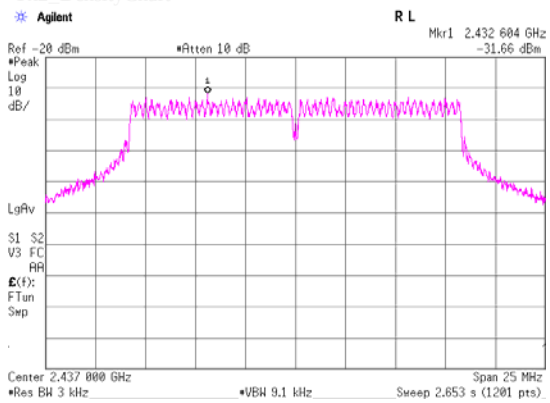
Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2412.0000	2407.60	-31.73	1.52	9.90	-20.31	8.00	28.31
2437.0000	2432.60	-31.66	1.52	9.90	-20.24	8.00	28.24
2462.0000	2462.67	-32.26	1.53	9.90	-20.83	8.00	28.83

Sample Calculation:
Result = Reading + Cable Loss + Atten. Loss

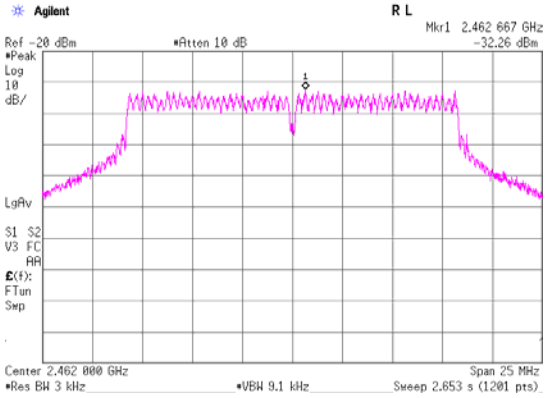
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



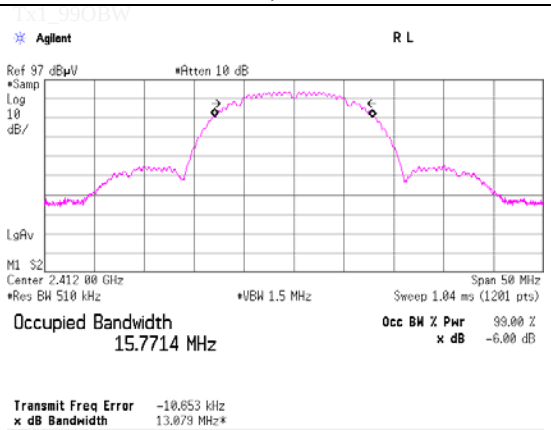
UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	June 11, 2014	
Temperature / Humidity	22deg.C , 53%RH	
Engineer	Akio Hayashi	

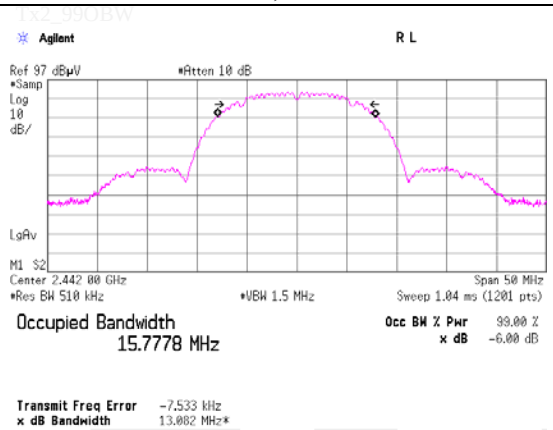
99% Occupied Bandwidth

Tx, IEEE802.11b, PN9, worst data mode 1Mbps

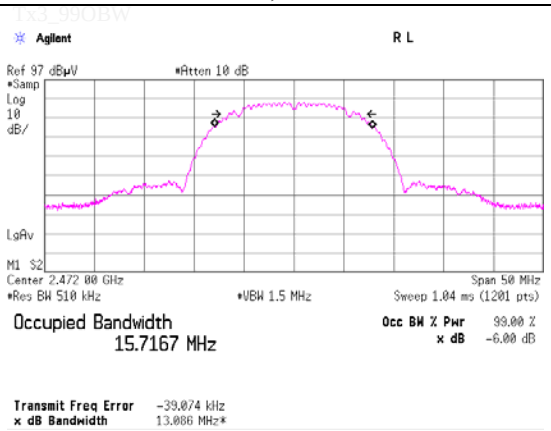
Tx, 2412MHz



Tx, 2442MHz



Tx, 2472MHz



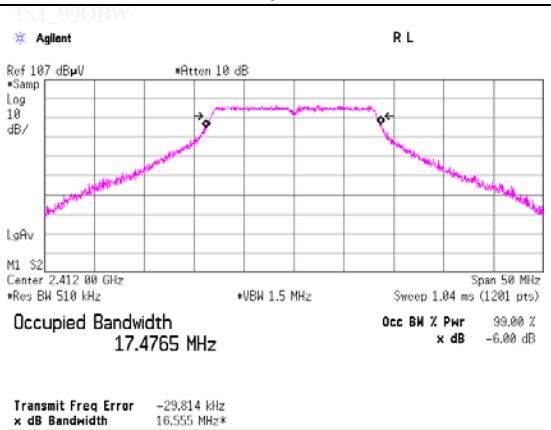
UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	June 11, 2014	
Temperature / Humidity	22deg.C , 53%RH	
Engineer	Akio Hayashi	

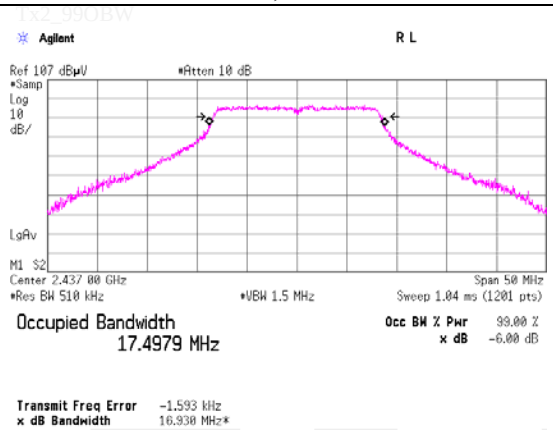
99% Occupied Bandwidth

Tx, IEEE802.11g, PN9, worst data mode 24Mbps

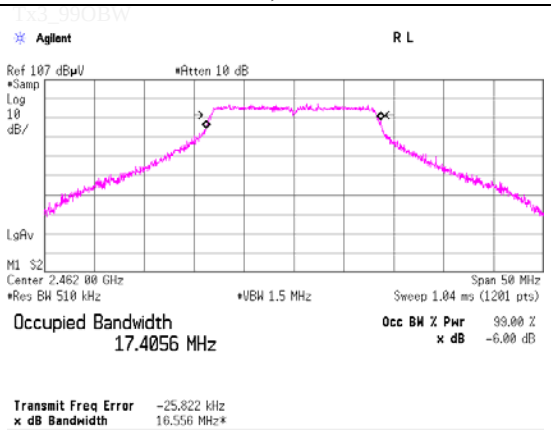
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

APPENDIX 2
Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
KSA-08	Spectrum Analyzer	Agilent	E4446A	MY46180525	AT	2014/03/04 * 12
SAT10-11	Attenuator	Weinschel Corp.	54A-10	37588	AT	2014/04/22 * 12
SCC-G13	Coaxial Cable	Suhner	SUCOFLEX 102	31599/2	AT	2014/03/14 * 12
SCC-H5	Microwave cable	Hirose Electric	U.FL-2LP-066J1-A-(200)	-	AT	Pre Check
SPM-07	Power Meter	Agilent	8990B	MY5100272	AT	2014/04/04 * 12
SPSS-04	Power sensor	Agilent	N1923A	MY5326009	AT	2014/04/04 * 12
SOS-09	Humidity Indicator	A&D	AD-5681	4061484	AT	2014/03/07 * 12
SPM-06	Power Meter	Anritsu	ML2495A	0850009	AT	2014/04/08 * 12
SPSS-03	Power sensor	Anritsu	MA2411B	0917063	AT	2014/04/08 * 12
SAEC-03(NSA)	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	RE	2013/07/09 * 12
SAF-06	Pre Amplifier	TOYO Corporation	TPA0118-36	1440491	RE	2014/05/23 * 12
SCC-G01	Coaxial Cable	Suhner	SUCOFLEX 104A	46497/4A	RE	2014/04/22 * 12
SCC-G21	Coaxial Cable	Suhner	SUCOFLEX 104	296169/4	RE	2014/05/15 * 12
SHA-03	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-739	RE	2013/08/19 * 12
SOS-05	Humidity Indicator	A&D	AD-5681	4062518	RE	2014/02/21 * 12
SSA-02	Spectrum Analyzer	Agilent	E4448A	MY48250106	RE	2014/03/17 * 12
SJM-15	Measure	ASKUL	-	-	RE,CE	-
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV(RE,CE,RFI,MF)	-	RE,CE	-
SAT10-06	Attenuator	Agilent	8493C-010	74865	RE	2013/11/22 * 12
SFL-02	Highpass Filter	MICRO-TRONICS	HPM50111	051	RE	2013/11/22 * 12
SCC-C9/C10/SRSE-03	Coaxial Cable&RF Selector	Suhner/Suhner/TOYO	RG223U/141PE/NS4906	-/0901-271(RF Selector)	CE	2014/04/25 * 12
SLS-02	LISN	Rohde & Schwarz	ENV216	100512	CE	2014/03/05 * 12
SAT3-06	Attenuator	JFW	50HF-003N	-	CE	2014/02/17 * 12
SOS-06	Humidity Indicator	A&D	AD-5681	4062118	CE	2014/03/07 * 12
STR-06	Test Receiver	Rohde & Schwarz	ESCI	101259	CE,RE	2014/03/04 * 12
SAF-03	Pre Amplifier	SONOMA	310N	290213	RE	2014/02/14 * 12
SAT6-06	Attenuator	JFW	50HF-006N	-	RE	2014/02/17 * 12
SBA-03	Biconical Antenna	Schwarzbeck	BBA9106	91032666	RE	2013/10/26 * 12
SCC-C1/C2/C3/C4/C5/C10/SRSE-03	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-271(RF Selector)	RE	2014/04/25 * 12
SLA-03	Logperiodic Antenna	Schwarzbeck	UHALP9108A	UHALP 9108-A 0901	RE	2013/10/26 * 12
SHA-04	Horn Antenna	ETS LINDGREN	3160-09	LM3640	RE	2014/03/15 * 12
SAF-08	Pre Amplifier	TOYO Corporation	HAP18-26W	00000019	RE	2014/03/14 * 12
SCC-G15	Coaxial Cable	Suhner	SUCOFLEX 102	32703/2	RE	2014/03/13 * 12

The expiration date of the calibration is the end of the expired month .
As for some calibrations performed after the tested dates , those test equipment have been controlled by means of an unbroken chains of calibrations .

All equipment is calibrated with valid calibrations . Each measurement data is traceable to the national or international standards .
Test Item :
CE: Conducted emission , RE: Radiated emission , AT: Antenna terminal conducted tests